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APRIL 1949

# THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

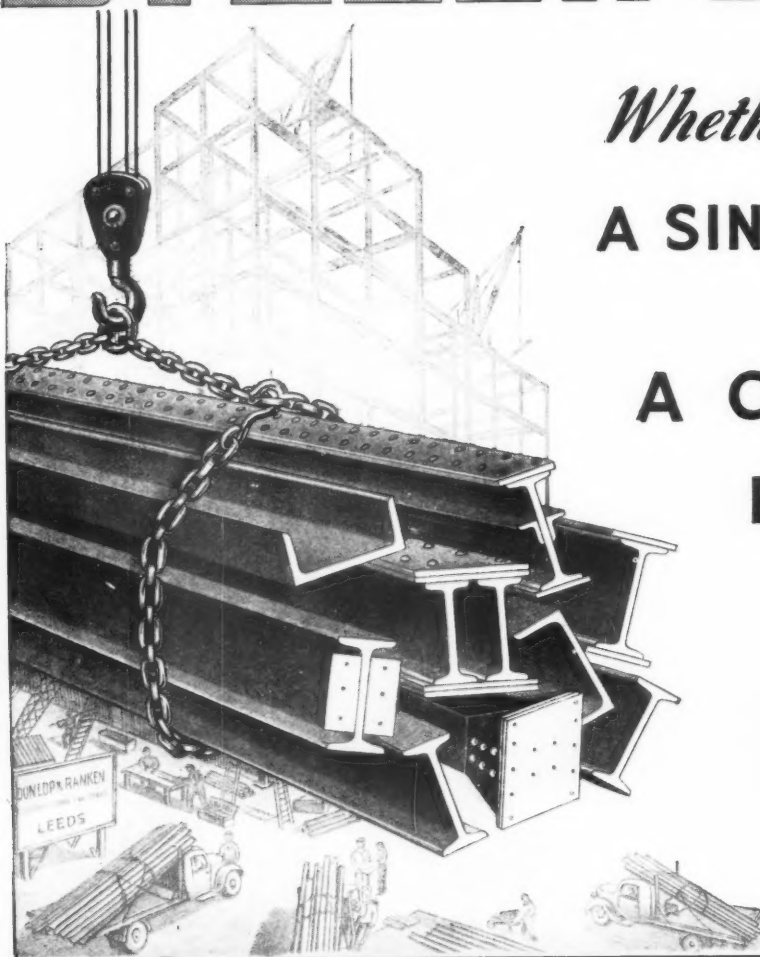


66 PORTLAND PLACE LONDON W1 • TWO SHILLINGS AND SIXPENCE



Liverpool Cathedral. From a drawing by Gordon Hemm [A]

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# THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES VOL 56 NUMBER 6 : APRIL 1949 : 66 PORTLAND PLACE LONDON W1 : TWO SHILLINGS & SIXPENCE

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## The Annual Report

Members will have received the Annual Report a few days before publication of this JOURNAL. There are two items in it which, more than anything else, indicate the flourishing condition of the Royal Institute. The first of these is the paying off of the mortgage on 66 Portland Place, which was arranged in 1938. The second is that the growth of Institute activities has been such that 'extra accommodation is most urgently needed.' These two items respectively indicate financial and 'spiritual' health. The increased activities for which accommodation is needed have resulted to some extent from the growth of membership, no less than 68 per cent since we entered into possession of the new building in 1934, but rather more from the demands of present-day architectural practice and the greatly increased contacts of the R.I.B.A. with the outside world. For example, consultation with Government Departments, nationalized undertakings, local government authorities and commercial concerns is now much greater in extent than before the war. There is also a much larger volume of work in connection with the service which the Salaried and Official Architects' Committee gives to salaried members of the Institute. The Library Committee says in its report that attendances in the Library have risen in a year from 10,887 to 15,573. The work of the Public Relations Committee on exhibitions has been greater, and in addition the conferences which have taken place since the war have imposed a considerable additional burden on the staff, who have responded with enthusiasm: they are to be congratulated on having kept pace with the increasing demands made upon them. These items are typical of the way in which the work of all departments of the Institute organization has grown and is still growing.

It is not surprising therefore that the Council are already looking towards the rebuilding of No. 68 Portland Place, which under the terms of the lease has to be undertaken before 1960, provided permits can be obtained, and towards the extension of No. 66. The Honorary Treasurer points out that the sums received for entrance and examination fees, due to the present large numbers of entrants to the Institute, are unlikely to continue in future years, so that while the Institute's financial position is at present very good, money is going to be needed for these eventual building schemes. The Council have wisely decided that all surplus moneys are to be credited to a newly-established 'R.I.B.A. Completion of Premises Fund'. From the foregoing remarks it will be seen that members will find much to interest them in a perusal of the Annual Report. They are reminded that the Annual General Meeting is to be held on Tuesday 3 May at 6 p.m.

## R.I.B.A. General Meetings

As was expected, Mr. Goodhart-Rendel's paper on *Rogue Architects of the Victorian Era* filled the Henry Jarvis hall to capacity. We wish we had the space to reproduce every one of his 45 slides, each of which, with his crisp and erudite commentary, was a separate, keen pleasure. We do not need to recommend members to read his paper, published in this JOURNAL.

The presentation, on the eve of our going to press, of the Royal Gold Medal to Mr. Howard Robertson was another highlight in the formal occasions of this session. A full report of what one member afterwards described as 'Thirty-five minutes of first class speeches' will be published in the next JOURNAL.

After the Annual General Meeting on 3 May the next meeting—24 May—will be devoted to a paper by Professor Ian Bowen on *The Economics of Building Operations and the Architect*. Professor Bowen is Professor of Economics at University College, Hull, and has made a special study of his subject in relation to present-day building practice. At the last meeting of the session Mr. Charles Woodward and Mr. Sydney Redfern will again discuss and answer questions on current practice problems under the title *Questions and Answers in Practice*. As last year, members are asked to submit questions in writing beforehand. The date is 21 June, so there is time to think up some difficult ones!

## 1949-50 Kalendar

A new edition of the Kalendar will be published in the autumn of this year, slightly enlarged to accommodate the ever-increasing membership of the Institute. The growing membership and post-war activities of the R.I.B.A., together with the present high cost of printing, make it necessary still to restrict members and students to one address each.

The latest addresses and titles now in the Institute's records will be printed in the new Kalendar, and members and students wishing to notify new addresses for publication in the next Kalendar are asked to do so as soon as possible, notification to be received from those in the United Kingdom by 31 May, and from those overseas by 30 June.

## R.I.B.A. Council Re-affirms Policy of equal Pay

Resultant upon an advertisement recently issued by the National Coal Board, the R.I.B.A. Council has reaffirmed the policy previously laid down that there should be equality of pay between men and women architects, provided the responsibilities and duties are the same.



### The British Architects' Conference

The programme and application form for the British Architects' Conference at Nottingham from 29 June to 2 July is enclosed with this JOURNAL. It will be seen that the last date for submission of an application is 4 June, but clerical and administrative work as well as planning for catering and accommodation will be greatly assisted if members intending to be at the conference complete and return their applications well before that date.

The Garden Party and Conference photograph on the afternoon of the first day is at Wollaton Hall, perhaps the town's finest possession. In addition to the items on the Conference programme mentioned in the March JOURNAL, the alternative half-day tours on Friday 1 July now include a visit to Calverton Colliery, a modern all-electric mine, and to Southwell Minster, a fine example of a great Norman church of the middle of the 12th century, bearing a striking resemblance, on a smaller scale, to York Minster. The choir with its stone screen was called by Ruskin 'the gem of English architecture', and the chapter house is unrivalled: in the cathedral is a curious altar made of parts of aeroplanes shot down in the First World War. The two further alternative half-day tours are to Boots Pure Drug Co. at Beeston, and a flight, from Tollerton Airport, of one hour's duration over the area of the Nottingham, Derby and Lincoln Architectural Society.

### Poster Art

An exhibition of original paintings for posters produced by London's Transport since 1908 is on view at the Victoria and Albert Museum until 30 June. It is well worth seeing for several reasons: it is something of a survey of artistic development over the last forty years; it reflects London life from serene Edwardian days (with John Hassall's fat 'Policeman') through two world wars and an uneasy peace; it reveals the art expressions which are known to have appealed to the most casual passers-by; it shows how the technique of the poster has developed. Here, as the Prime Minister said in opening the exhibition, is a picture gallery which has given pleasure to millions, a popular art in the true sense of the word.

We reproduce on this page a poster by Rex Whistler who, to our loss, died in the North African campaign. Although black and white cannot reproduce his clear, sparkling colours, it brings out his brilliant draughtsmanship, his subtle humour and his sense of form, derived from an architectural training.

Both the Prime Minister and Lord Latham, who introduced the exhibition, referred to the great part played by the late Frank Pick (an Honorary Associate of the R.I.B.A.) in starting this tradition out of his own beliefs that good art was good business and that popular art should be good art. Mr. Attlee also pointed out that it had had two unexpected results; it had by its influence enormously improved the whole craft of advertising and it had made Londoners aware of the countryside.

Sir Leigh Ashton, Director of the Museum, said that a good poster artist was not necessarily a good painter. McKnight Kauffer had never painted a painting, while the worst poster in the exhibition (he declined to indicate it) was by a distinguished painter. Annexed to the London Transport exhibition is a room of French and English posters from the Museum's own collection.

### Liverpool Cathedral

During her recent visit to Liverpool, H.R.H. Princess Elizabeth performed the ceremony of opening the main door of Liverpool Anglican Cathedral. Sir Giles Gilbert Scott had designed a special key, which was presented to Her Royal Highness by a choir-boy. This ceremony is one of many which has linked the Royal Family with the Cathedral, in the building of which they have taken a great interest since it began over forty years ago.

On the cover of this JOURNAL we reproduce a drawing of the Cathedral, by Mr. Gordon Hemm, Dip.Arch. (Liverpool), [A], which was included in the exhibition of his drawings which we recently reviewed.



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A poster for London Transport by the late Rex Whistler, from the Art for All Exhibition at the Victoria and Albert Museum

### Office Experience for Students of Architecture

With the summer vacations only a few weeks ahead students at the Schools of Architecture are writing to the Institute asking for the names of architects willing to employ them in their offices for the best part of the summer months. Members who are in a position to offer such employment are asked to inform (a) the Secretary of the R.I.B.A., if their offices are in London or in an area not covered by an Allied Society; or (b) the Hon. Secretary of the Allied Society of their particular area; stating the number of students they are able to accept and the remuneration they are prepared to pay for their services.

Last year there was an extremely poor response to this request, and the number of students seeking practical experience during their vacations was far in excess of the number of vacancies. It is hoped that this year members will be more forthcoming.

### Mr. W. H. Kininmonth [F]

Mr. W. H. Kininmonth [F] has been elected an Associate of the Royal Scottish Academy.

### R.I.B.A. Diary

TUESDAY 3 MAY 6 P.M. Annual General Meeting.

TUESDAY 24 MAY 6 P.M. *The Economics of Building Operations and the Architect.* Professor Ian Bowen.





# Rogue Architects of the Victorian Era

By H. S. Goodhart-Rendel, [F]

Read before the Royal Institute of British Architects  
8 March 1949. The President in the Chair

**Mr. H. S. Goodhart-Rendel:** According to the dictionary rogue-elephants are those 'driven or living apart from the herd, and of savage temper'. How far will this definition apply to the rogue-architects that are my subject tonight? Most of them will be found to have shown a fairly savage temper architecturally, even though as citizens they may have been the mildest of men. All of them will have worked apart from the herd, although we may not be able to determine whether they have been driven to do so or have done so by their own choice. While all will have been personal nonconformists, none will have been leaders of nonconformity. Those whom others follow are no true rogues.

You may say, of course, that the event of attracting or of not attracting followers does not alter the nature of a rebel. I agree that it does not. On the other hand, I think that it generally shows us what that nature was. If disciples have followed him he ceased to work apart, he proved himself no rogue, but a pioneer. But if those that might have been his comrades kept aloof from him, approaching only, when his back was turned, to snatch an idea or two and run away; I think then that his roguery is established.

Not that roguery is practised only by rogues. The most orthodox gentlemen may have their lapses. In the main, however, I shall direct my remarks at the productions of *no-men*, of men who seldom if ever said yes, of men, some of whom were greatly to be respected, and others of whom were merely naughty; of men who, whether respectable or naughty, were continuously in disaccord with the conventions of their time.

Many people nowadays seem to read Loudon's *Encyclopaedia of Village and Cottage Architecture*, a book that for many years I fancied to be a lonely pleasure of my own which few ever would share. To those who read it the name of Edward Buckton Lamb will not be strange. The most exciting woodcuts in the book are those showing his designs, whether of an Italian public house, an Edwardian park entrance or an Elizabethan drawing-room, or an extremely florid Louis XIV chimneypiece. They establish Lamb, at the least, as a man of very various resource. Yet I confess that it came as a shock to me when I realized that these designs were the work not of an enthusiastic boy, but of a man nearer thirty than twenty years old. Nor was I in

any degree reassured by what I could find of buildings carried out by him at about this time, such as the church, now destroyed, that used to stand at the top of Arnold Bennett's Riceyman Steps in Clerkenwell. Considering what they were to produce afterwards, Lamb's powers as an architect developed late.

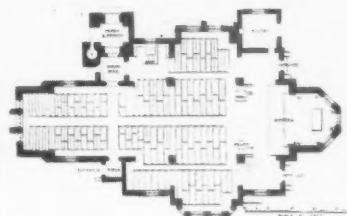
From the year 1850 onwards we find Lamb in full swing, designing churches, country houses and village buildings in a way all his own. In most of his churches he rejects completely the neo-mediaeval ground plan and section upon which at his time all 'correct' opinion insisted, and experiments instead with large unbroken areas covered at a low level by steep roofs of broad span. At Bagby in Yorkshire, in a small church, the main area is square and its roof pyramidal. More often shallow projections make the square cruciform covered by two intersecting roofs. At Sowerby the re-entrant angles of the cross are partly filled by triangular additions so as to make the body of the church more octagonal than anything else. Finally, in the grand church at Haverstock Hill, and at Addiscombe in Surrey, Lamb arrives at a completely original, and, I think, almost perfect, solution of what a large auditorium for Protestant services should be.

In Lamb's day most Anglicans called themselves protestant, and on Sunday wanted very much to see and hear the preacher. But the Puseyites, who called themselves catholic and did not care greatly for sermons, were the fashionable party in the Church and set its fashions in architecture. Puseyites doted upon deep screened chancels and abhorred auditoriums and all who advocated them. In the notice in the *Ecclesiologist* of the Free Architectural Exhibition of 1850 we read the simple sentence, 'Mr. E. B. Lamb's first sketch for Pennant church looks very ghastly.' Perhaps this is why poor Lamb's innovations seem to have fallen rather flat, and certainly found few imitators. He was clever, but he was not quite the thing.

Or did people's stomachs turn at his decorative details? I have not said anything about those hitherto, because detail is detail and I have been speaking of essentials. Also, my stomach must be rather like Lamb's, because, although I find his curls and chamfers, his corbels and weatherings not altogether palatable, I find that parts of them are excellent and none of them really turns me up. He was a curious fellow,



ST MARTIN'S CHURCH, HAVERSTOCK HILL, 1850-51, E. B. LAMB, ARCHT.



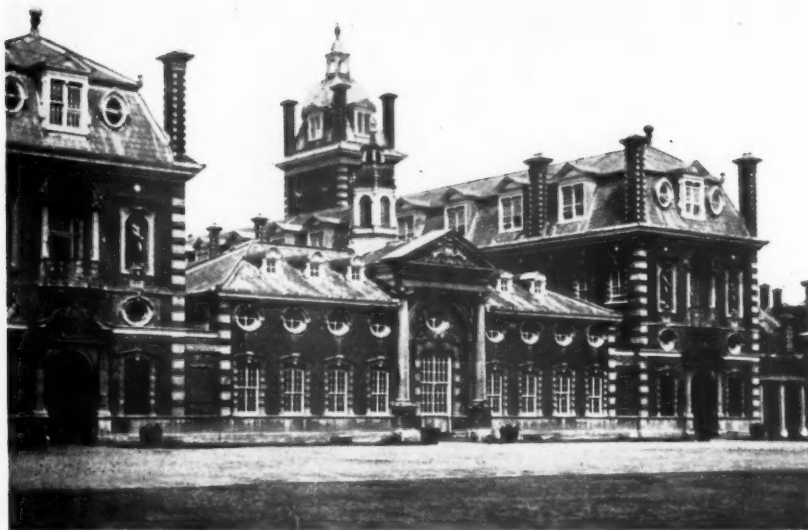
E. B. Lamb: St. Martin's Church, Haverstock Hill, London



E. B. Lamb: Remodelling of Hughenden, Bucks

Lamb, apt to be very violent indoors. I have been told that in a house of his that I have not seen the drawing-room doors have architraves of knapped flint (which sounds more like the late Sir Herbert Baker to me, but no doubt may be true). His little church at Englefield Green is lined with something that looks like a home-made rock garden, brick rubble or clinker, I can't quite remember which. His church at Aldwark, in Yorkshire, has the bricks in its walls not coursed but up-ended and herring-boned, with results that in a building of small scale are certainly surprising.

But, to return from materials to decorative details, you find in Lamb's work an uncannily near anticipation of the peculiarities that many people, when I was young, used to relish so greatly in the work of the late Mr. Caroe. You find buttresses that have come loose from the walls and got into the windows, and most peculiar pinnacles, and lots of crowded very cuspy tracery and all sorts of funny arches and splays. All very nice indeed when you are in the mood for it. But how often in an ordinarily stodgy congregation would that



John Shaw: Wellington College

mood occur? Moreover, the contemporary pundits of architecture were *never* in the mood for it. 'Christ Church, West Hartlepool,' says the *Ecclesiologist* in 1855, 'is one of those uncouth and grotesque combinations of incongruous architectural *tours de force* which it requires the inartistic and withal presumptuous mind of Mr. Lamb to conceive.'

Lamb had much knowledge of old English buildings—he made and published beautiful drawings of them—so that the novelty and oddity of his style must have been the result of choice; not of ignorance like the oddity of most Gothic that is attempted today. In his churches he had reason to innovate: he wished to evolve an unprecedented type of plan which the customary proportions of Gothic would not fit. In his secular buildings he innovated without necessity just because he liked doing it. Lord Beaconsfield liked his doing it too, judging from the surprising alterations Lamb was allowed to make at Hughenden. So did one of Lamb's Yorkshire patrons, whose ancestral home, Nun Appleton, became similarly embellished. Other names now call me from Lamb's, so that I must leave most of the secular part of his production to your imagination. If you have carefully observed his characteristics as a church builder you will not imagine it wrong.

Anybody who knows anything at all about the history of English architecture will tell you that the Queen Anne style was first revived in the last century, somewhere about the 'seventies, by an architect whose surname was Shaw and whose christian name was Norman. This is as true as most popular notions of history, but if we want to be pedantically exact we must amend it just a little. The Queen Anne style was revived in the last century somewhere in the 'forties, not the 'seventies, by an architect whose surname was Shaw, and whose christian name was John, not Norman.

Norman Shaw's 'revival' when it came was not really a revival so much as the invention of a so-called 'Queen Anne' style that had never been seen before either during the reign of that monarch or at any other time. Not even the invention of that was strictly due to Norman Shaw, but was disputable rather between Philip Webb, Eden Nesfield, and 'Jock' Stevenson. John Shaw's independence, however, is much less doubtful. The Royal Naval School that he built at New Cross in the year 1844 reproduces very faithfully the mannerisms of the age of Wren; indeed the resemblance between the style of its chapel and that of Wren's church of St. Benet on Paul's Wharf is very striking. As far as I can trace, no new building of this kind had been attempted since its style had passed out of use over a century before. A few timid imitations of some of its characteristics can be seen in other scholastic buildings put up shortly after Shaw's innovation, but these are not sufficiently derivative to deprive him of his rogue-hood. Yet I must allow his roguery to have been intermittent. There stood, within my memory, an office block built from his plans in Fleet street, near to the beautiful church of St. Dunstan-in-the-West, that had been the work of Shaw's father, another John. This office block had a provokingly Jacobean character that defied the prevailing fashions of its time, but it defied them in company with the earliest Victorian 'Elizabethan', in which quite a few architects were making experiments. In designing it Shaw was not working apart from his fellows! Off Chancery Lane, in Gough Square, there used to stand, also, a grim round-arched brick church by our Shaw, which was not essentially unlike much contemporary work by Edward Blore. It was not ill-designed, but was abnormal. Nevertheless, when in the year 1855 his great chance came with the commission to design Wellington College he sailed forth in the teeth of the

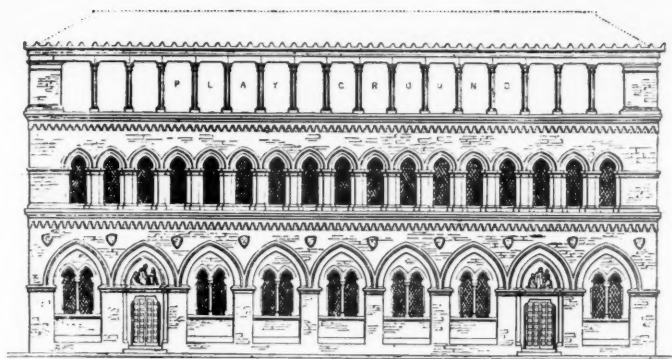


John Shaw: the Royal Naval School Chapel

Gothic gale alone and undismayed. I can think of no other British architect then alive who would have dared to plan a great public school as a symmetrical whole, and to dress it in architectural clothes no older than of the late 17th century. John Shaw did both, and produced his masterpiece. Hardly was it finished before Sir Gilbert Scott was called in to damage it by the addition of a characteristic, and therefore artistically worthless chapel, in the routine Gothic style that Shaw had so markedly eschewed. Thus the rogue was punished.

The next peculiar architect whose works I shall bring before you is James Wild, two of whose buildings, the old St. Martin's school near Long Acre and Christ Church, Streatham, have lately been rediscovered with a certain amount of noise. John Ruskin, when he began to preach the gospel of southern Gothic found that in St. Martin's school Wild had got in first, and praised his forerunner with generosity. Certainly the school, considering its date, was phenomenal: its horizontality at a time when all godly architecture was expected to shoot upwards in gables and spikes, its uniformity at a time when more than two windows of one pattern were thought wretchedly monotonous, the pillar and beam construction of the playground on its roof at a time when pointed arches were expected even in carpentry, its material, red brick, at a time when pure Gothic was thinkable only in stone—all these in the year 1843 must have seemed unwarrantable in the extreme.

Wild was the son of a painter, and had a strong sense of pictorial effect. At the beginning of his practice he produced churches which in spite of their routine Gothic details have usually something striking in their forms and silhouettes. When, however, with the foundation of the Cambridge Camden Society, English Gothic became not a taste but a second religion with all true Anglicans, Wild



James Wild: Old St. Martin's School, near Long Acre, London



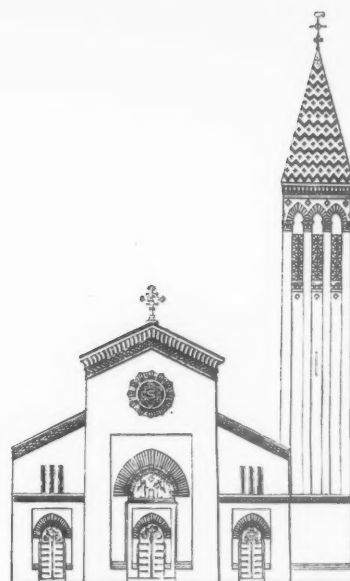
Proposed design for the Great Exhibition Building 1851. Brunel or James Wild (?)

hastened for inspiration to other sources. It is difficult to say precisely what he had been looking at when in the year 1840 he conceived Christ Church, Streatham. The Camdenians pronounced that its style was 'a poor adaptation of the Romanesque of the south of Europe,' without fathering it upon any country in particular. To me it suggests that Thomas Hope's *Historical Essay on Architecture*, then a newish book, had found in Wild an attentive student.

Wild's life and work needs more investigation than I have been able to make of it, for nearly a quarter of a century he was curator of the Soane Museum, and I hope that the present distinguished holder of that office will some day turn his historical searchlight upon his predecessor. It has been lightly inferred that what has been called the Byzantinism of his architectural idiom was due to his prolonged travels in Egypt and the East, but the Streatham church was begun before he went abroad, and is as much or as little 'Byzantine' as his subsequent designs, among which I may particularly mention St. Mark's church at Alexandria and the Teheran Legation. His master, Basevi, was Lord Beaconsfield's uncle, and, I presume, a Jew; but in Basevi's work there is none of the slightly synagogal character that we may fancy we detect in the work of his pupil. I believe myself that the flavour of Wild's work was the flavour of the man, without any unusual external influences to account for it. He knew a great deal about Arabian art; indeed, he was employed as an expert on that subject by the South Kensington Museum, where some of the older buildings customarily

attributed to Fowke and his collaborators might perhaps be found on enquiry to be Wild's. But I see, in what of Wild's work I know, nothing more of Arabian influence than might remain in the minds of any of us after glancing through a book of Eastern sketches. I apologise for presenting you with research half done, but Wild could not possibly be excluded from this lecture seeing that he was one of the loneliest Victorian designers, and a very good one, too. There is in the Dictionary of National Biography an excellent short account of him, written by Paul Waterhouse, the father of our president. In that notice he is said to have been appointed in 1851 as 'decorative architect to the Great Exhibition', which appointment possibly accounts for his later connection with the South Kensington Museum. But what was his function in the first instance? I shall submit to you a guess. It is well known that Paxton's design for the exhibition was chosen as an eleventh-hour alternative to a design put forward officially by the Exhibition Commissioners. This design has been supposed to be by Brunel, but I know of no evidence that he concerned himself with it outside the method proposed for the construction. Was it not Wild's? Critics both at the time and later have dealt with it hardly, but personally I think that it looks better suited to two-thirds of the exhibits it was to contain than was Paxton's Fairy Palace. It is not very gay, but the first conception of the great fair was not very gay either. The arched porches and the plain iron-plated dome seem to me very well in their way.

I have premised that whether you are an



James Wild: Christ Church, Streatham

elephant or an architect you must be lonely to be a rogue. No one must follow you, you must have no disciples, I do not think you need be disqualified if you *desired* disciples provided that you did not get any. Nor need you be disqualified if futile people dig you up after you are dead and say that you *ought* to have had disciples and that they propose to follow you now, whatever people did while you were alive. Take my next subject, Mr. Thomas Harris. He tried to invent a new style, and proposed it for general adoption in a pamphlet entitled *Victorian Architecture*. If it is true, as I have heard stated, that no earlier use can be traced of the word *Victorian* in its present sense, then Mr. Harris has certainly been followed in something. But I am glad to say that his architectural style was practised by him exclusively and not very extensively at that. As he grew older he gave it up himself. Harris's pamphlet is generally met with in octavo form, unillustrated, but I have seen a copy of larger format which included one magnificent plate, afterwards reproduced in *THE BUILDER*. This plate depicts a terrace of houses in which the Victorian style was fully displayed. It was to have been built at Harrow. In showing you other specimens of this remarkable architectural development I am again in a difficulty due to insufficient documentation. Some years ago I might have procured for you photographs of two fully documented examples, one a building next to the Pantheon in Oxford Street, and the other a building on the west side of Bond Street. Both have now gone. There still remain, however, a range of buildings on the west side of Wells Street, and a curious little club in Grotto Place, St. Marylebone, which would be good understudies for the missing masterpieces if there were any but internal evidence that they were by Harris. Nevertheless, I feel inclined to offer to eat



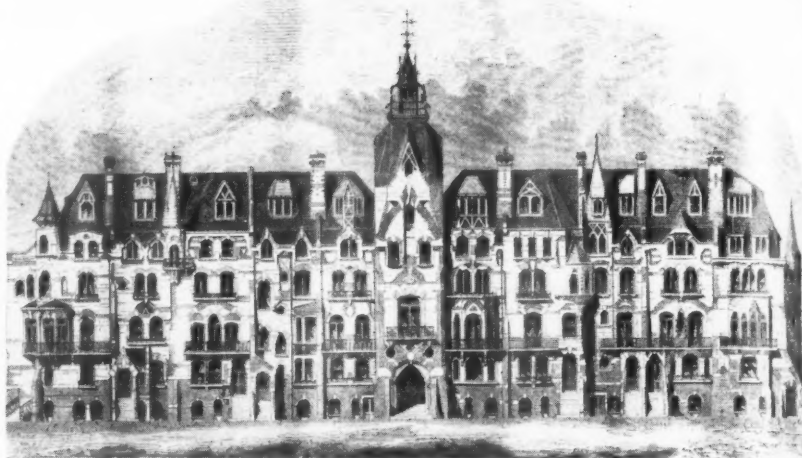
any reasonably digestible hat if they are not. Because if these were the work of imitators my thesis of Harris's roguery would fall to the ground. But I am not alarmed for its safety.

The novelty of Harris's developments (which in some ways resemble those attempted fifty years later by the Belgian architect, Horta) was only skin deep, he had nothing new in construction to offer, but merely a fancy for queer shapes arbitrarily conceived. In the works of his more serious contemporaries we can find shapes not dissimilar, arising by logical development from the angular Gothicism of the day. It was not only rogues then that were of savage temper architecturally. But Harris's roguery lay in his empiricism, his impatience of rational restraint. His later practice was not consistent with his earlier. Having satirized the 'Queen Anne' style of the '70s by a drawing in which it is amusingly caricatured, he perverted to its practice, and spread it at great expense all over the inside of St. Marylebone Parish Church. Some illuminating notes upon Harris as a man are to be found in the history of Messrs. Batsford's publishing firm issued in that firm's centenary year.

The rogues I have spoken of so far, Lamb, John Shaw, Wild, and Harris, have long laid buried and forgotten, as most rogues will lie until on some dark night a resurrection man such as myself dares to exhume them for dissection. Most, but not all. Rogues there are whose exploits although imitated by nobody have made a lasting impression upon the imagination of their time, and when that time has passed have not ceased to be remembered. If, however, a man is remembered not for his unimitated exploits but in spite of them—if he is remembered for a theory that has been adopted by others when his method of practising it has not—then I doubt if he can qualify as a rogue.

In the Victorian era there ran out of the herd two architects who did savage and lonely acts amid a good deal of applause, some of which we echo today. Their names were Alexander Thomson and William Butterfield. Thomson's picture hangs in my gallery, Butterfield's does not. I know no buildings by other architects that imitate Butterfield's particular mannerisms except one or two by his nephew, R. W. Drew, that do it faintly, and a church designed by James Brooks early in his career, in which the Butterfieldian flavour is strong. But in theory Butterfield proved himself a leader and evangelist. You cannot make a rogue of a man from whom almost all contemporary Gothicists accept the tenet that angles are more Christian than curves, even though they left him to himself when he provided saints with polygonal haloes. There is a great deal I should like to say about Butterfield for his own sake, but his only place now can be in my back-ground.

Thomson, on the other hand, was no teacher, but a true rogue within the meaning of my thesis. Trained in youth to produce the Scottish baronial style as understood in Glasgow, he seems to have run a



Thomas Harris: proposed terrace of houses at Harrow



Alexander Thomson: *Cottage orné* in Scotland

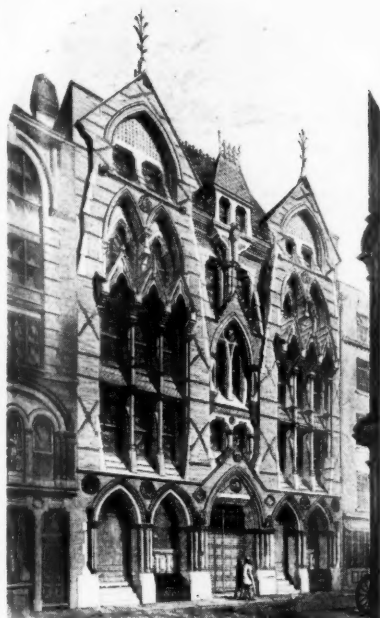
side line in the *cottage orné* style that in England had just been superseded by forms less fanciful. Whether the importance of his cottages, every feature of which is an exaggeration of something that the orthodox opinion of his time had just learnt to disapprove, was due to his provincialism or to his incipient roguery, I cannot pretend to decide. The specimen I show you will appeal to the most modern taste, and seems to me made for Mr. John Piper to paint. But Thomson did not long continue designing such things. In his late thirties he suddenly, and with much violence, went Greek. This, half way through the 19th century, was a strange thing to do. It is true that in Scotland the neo-Grecian style, which in England had died with the Georges, was prolonged well into the reign of Queen Victoria by imported scholarship, chiefly from Germany. But the Schinkel-like style of Hamilton and of Playfair in Edinburgh soon died in its turn, and its body was already become an offensive nuisance to all cleanly opinion when Thomson began to stage its resurrection. Not that Thomson was any disciple of Schinkel; it is hard to think of him of having been a disciple of anyone unless it had been of the painter, John Martin. In the middle distance of *The Fall of Babylon* or of *The Last Judgement* his United Presbyterian churches would not look at all amiss. In their architecture Egyptian, Hellenic and Hellenistic elements are picturesquely combined in a manner that show very little



Alexander Thomson: St. Vincent's Church, Glasgow

commonsense but great scenic skill. In his commercial buildings similar ingredients coalesce with as much drama and as little reason as they have done in the London of our own day at Adelaide House.

Beside kirks and office buildings, Thomson, after his conversion to Grecianism, built some houses of which that called Holmwood at Cathcart is a charming example. Of these houses he seems to have designed all the internal decoration (most of it highly Grecian in varnished pine), a thing that not many architects of his day were either competent or permitted to do. Taking his work in the mass, we cannot, I think, call Thomson a great architect, but we can call him with truth one having great originality of outlook, and great skill in architectural picture-making. With a little less attention to style and a little more attention to propriety, he might have proved no rogue but a leader.

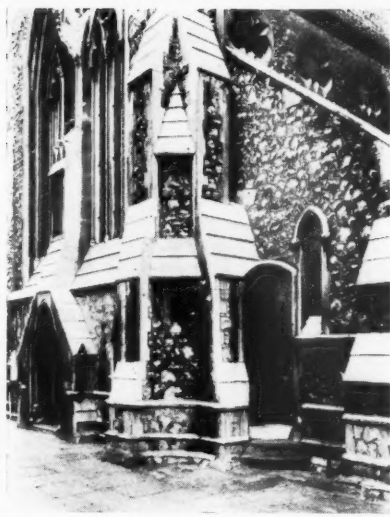


R. L. Roumieu: warehouse in Eastcheap, London

I am now going to bring to your notice a trio of architectural rakes, whose deeds of lawlessness are not altogether unlike. Had they ever acted in any sort of concert we might have regarded them not as rogues but as a gang. No concert seems to have existed between Messrs. Roumieu, Peacock, and Keeling; for these were their names. Each did his best to debauch the Gothic Revival, independently of the others, and the general resemblance between the results of their attempts was due not to the similarity of their efforts but to the identity of their victim.

Round about the year 1860 the Gothic Revival was very vulnerable by such attacks. These were the days, in costume, of the longest whiskers, the most spacious crinolines, and the biggest stripes and checks. Fashions in architecture were similarly exaggerated, and strong influence had to be exerted by the leaders of the profession to ensure that if young men went as far as Mr. Street did they should at any rate go no further. The public, on the other hand, was in the mood for stimulation and excitement and did not care very much how it got it. The Architectural Publication Society's Dictionary records the curious fact that the style pandering to the same mood in Paris, the style of Davioud and of Lobrot, was nicknamed the 'Style Rageur'.

Ruskin's theories, Butterfield's reforms, and Street's sketching holidays, had thrown into the Gothic pot much strong seasoning so that even Sir Gilbert Scott found it politic to let his staff of architectural undercooks serve up curry fairly often. The dominant Gothic party insisted that architecture must above all be 'vigorous' and in contemporary office slang the highest



Joseph Peacock: church of St. Simon, Chelsea

praise for a design was to say that it had plenty of 'go'. The Gothic party, however, bristled with principles rigidly upheld, and if led by duty to design what was sensational abhorred sensationalism as such. When Butterfield hit what he regarded as a frivolous and self-indulgent age full between the eyes he did it of high purpose. He would soften no asperity even to conciliate his most sympathetic employer. Alexander Beresford Hopz, who wrote of him after a difficult interview, 'he will, I fear, get more and more wild, and will not stop till he finds himself Butterfield against the world, not as Athanasius'.

What Butterfield would have thought of such wild hitting out as was practised by R. L. Roumieu in his eclectic Gothic shops and warehouses, I hardly like to imagine. Perhaps he would have attributed it to possession by a devil designing to make of his holy style a mockery. Possibly there are one or two bits of punch in it he might rather wish that he had thought of himself.

In any serious history of English architecture Roumieu would be a negligible figure. A rake, in his designing, he was, one imagines, in his professional life a pillar of respectability; and his aesthetic rakishness for all its violence is eventually dull. He was for twelve years in partnership with an architect inferior to himself, called Gough, who by some strange misjudgment is commemorated at considerable length in the Dictionary of National Biography. In the design of Milner Square, Islington, the partners seem to have remembered something of the teaching they may have had when they were pupils in Benjamin Wyatt's office, with results that are spectacular in a way, but in general either singly or together they seldom fail to be vulgar without being either funny or interesting. 'We only know Mr. Gough by his results,' observes *The Ecclesiologist* in a critique of his rebuilding of the old church of St. Pancras, 'but these results justify us in asserting that we believe that in these days of architectural improve-

ment, it would have been difficult to find any other person who could have so completely succeeded in doing badly.' Happy days, when, whether architecture was improved or not, critics enjoyed free speech!

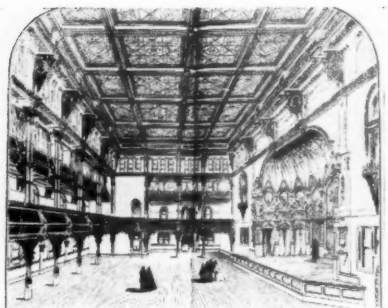
Of Joseph Peacock's architectural beginnings I have no information, the first work of his that I know being the church of St. Simon that he built in 1859 in Upper Chelsea. And what a church that is! When it was built it stood to the south of the vast open space that then lay between the Brompton and the King's Roads, and, although of modest size, must have seemed large in comparison with the little cottages in Moore Street, which were its only near neighbours. Now the houses of the adjacent Lennox gardens make not only the cottages but the church seem very small indeed. But never can there have been more architecture in less space. Surprising architecture too; Peacock has been determined that anyone inspecting his church shall not be dull for a single moment. I wonder if he had seen a church that Lamb had built ten years before at Prestwood in Buckinghamshire? If he had, he may have found there the germ of the strangest characteristic of his plan, the division of his nave into two parts, a high part at the east being flanked by high chapels filled with galleries, and a lower part at the west flanked by normal lean-to aisles. This produces internally a variety of arches differing in shape and size that is truly astonishing.

On other bright ideas I must not linger, but I can not resist just cataloguing some of them. Inside the church there is a complete east window of five lights richly tracered which has most of its openings filled with carved stone foliage so that only a few slits and holes get through to the outside, to make there an entirely disconnected appearance. Not many people would have thought of the shape chosen for the clerestory windows, and I doubt if anyone except Peacock could have thought of the shape of the stone screenwork that divides the aisles from the chapels. There is some nice quiet fun round the vestry door outside, and a bit of horse-play, rather rough perhaps, where the gallery staircase bursts its exit through the west front. A contemporary description says that the pulpit staircase is 'artful'; I am afraid I do not remember it, but I have no doubt that it is.

If an inspection of St. Simon's, an entertainment I warmly recommend, should produce in anyone a thirst for more Peacock there are, I regret, to say, few sources of refreshment available to him. Peacock's church in Gray's Inn Road was pulled down many years ago (that was fun—that was!) and I can not answer for his Scottish Episcopal church of St. Andrew at Perth, never having seen it, though woodcuts of it are promising. The church of St. Stephen in Gloucester Road, Kensington, has been tamed by other hands, but is an authentic work except in its steeple and vestries. In later days he became badly infected with good taste, and his church in Derby, that in Cromer Street, St. Pancras, and that at Kentish Town (which fell down a hill and is no more) have no place in this lecture.



E. B. Keeling: St. George's Church, Campden Hill, London



E. B. Keeling: The Strand Music Hall

Shelley House, on the Chelsea Embankment, which he built, replete with private theatre and every other modern convenience, was bought not very long ago merely to be pulled down and replaced by a house forty years further on in the march of architectural fashion. Peacock had designed the old house right down to its furniture, published drawings of which suggest that domestic decoration was not his *forte*. He built in his late days a warehouse, the design of which had the honour of being chosen for publication by the Architectural Illustration Society, a fastidious body upholding a high standard of aesthetic refinement. The design was virtuous and dull.

Peacock seems to have been an architect chiefly of churches, and one favoured by the Low Church party in the Establishment. Mr. E. Bassett Keeling also built a good many churches no less extravagant architecturally than Peacock's, and all, I think, for the same party. Obviously the two knew how to provide places of architectural entertainment for Sundays without either profanity or popery. But the place of entertainment that brought Bassett Keeling into public notice was of a very different kind

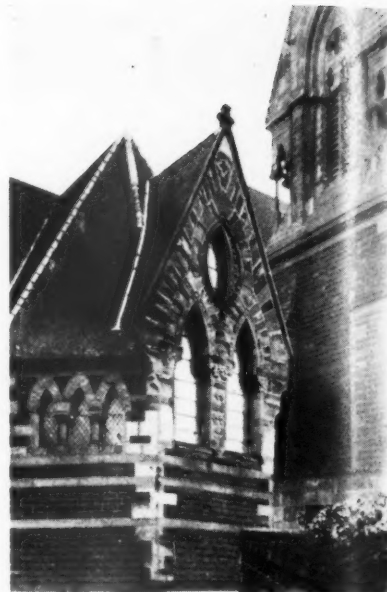


F. Pilkington: the Windsor Hotel, Victoria Street, London

from these. The place was the Strand Music Hall, and the notice that it attracted was very unfavourable.

I can not get to the bottom of the deep disapproval of this building registered by the Press of the time, nor have I come across the reason for its early demolition. It was built in the year 1865, had a very richly carved façade on the Strand, and a capacious and peculiar interior. Five years later, all of it belonged to the past except the façade, which was used by the architect Phipps when he built the original Gaiety Theatre upon the same site. Nobody seems to remember that façade, and I can not find a photograph that shows it in any detail. The woodcut of the original design published in the *BUILDING NEWS* shows no superfluity of naughtiness, so what can have been the cause of the tradition I remember in my youth, that in that façade Keeling really had gone *too far*? It looks in the woodcut to have been ugly enough, but ugliness in the 'sixties made no more scandal than it does today. Perhaps, but this is only a guess, the architecture's bad name was transferred, unfairly to Keeling, from the building itself, if suspicion were felt as to the uses to which it was or might be put.

I never thought of Mr. Sadleir's 'Fanny by Gaslight' in Gothic surroundings, but I do not see why she should not have been, if the Gothic was designed by Keeling. The interior of the Strand Music Hall, as shown in his drawing, seems to me to have a raffish look that might account for its contemporary disapprobation were it not that the same look appears in his churches and there aroused no comment. There used to be six of these in London. St. Paul's, Stratford, is now burnt out; St. George's, Campden Hill, has been much altered; but St. Mark, Notting Hill, remains, and, for all I know, so do Christ Church, Camberwell, St. Andrew, Peckham, and St. Paul, Upper Norwood. Personally, I dislike looking at them very much, but can not

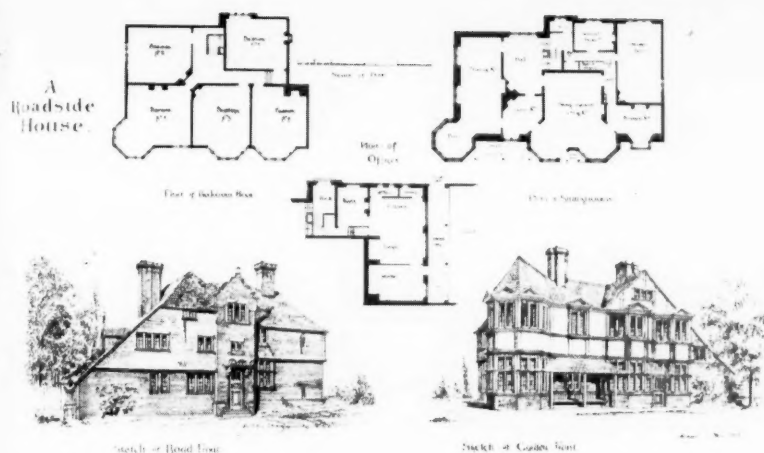


F. Pilkington: Irvine Church, Edinburgh

defend the strength of my distaste on rational grounds. There is no question of their being beautiful, but they try very hard to be amusing and it may be my fault that they do not amuse me. In his later years Keeling conformed to more ordinary standards, built the City Liberal Club, a long dull range of offices in Victoria Street, a large unsightly city restaurant, and passed from the field of this lecture.

The mention I have just made of Victoria Street is a convenient hinge on which to turn to the subject of my next portrait; since in Victoria Street stands a prominent and extraordinary building designed by the subject of that portrait, Mr. Frederick Pilkington. This building was until recently an hotel, the Hotel Windsor, but is now put to other uses. The size of its arched portal, its lower windows, and its rusticated quoins, is so enormous that one is not surprised when one is told the story that the masons blindly followed drawings inscribed with a wrong scale until it was too late for Pilkington to stop them. Yet this is scarcely more credible than the similar story, once popular, about Nash, that he told the builders of his Haggerston church tower to go on building until he sent them drawings for the belfry stage, and found them up in the clouds when he next remembered about them. No, I think it more than probable that Pilkington meant the building to be exactly as it is; its alarming character is very much what was to be expected of him if he were given ample material resources and a conspicuous site. Even had they been of normal size the details of the building would have been far from normal in character, in the work—that is to say—of anybody except Pilkington. Thanks to him, however, there is plenty of such stuff in London. His peculiar scrolls, acroteria, and grooved





Edward Prior: design for a roadside house

ornaments were easily mass-produced in reconstructed stone in which disgusting material (generally blood-red in colour) they are liberally spread over the many working-class tenements built by a company for which he was architect. Their style, if that need be characterized, is a sort of insensitive parody of French Neo-Grec, strongly tinged with the Style Ragueur, to which I have already made reference. Classical spots in which it may be studied are Chiltern Street, St. Marylebone, and the Charing Cross Road.

Pilkington's style raged fiercely not only in tenements but in Scottish kirks, although in these the Neo-Grec character is replaced by Neo-Gothic. In one of these, in a southern suburb of Edinburgh, he has created an architectural effect that seems to me really frightening, although I think that may not be the effect he intended. His last work was a long terrace of houses on Campden Hill in design both grim and dreary. He was a real rogue: nobody can mistake his work, and no other architect would wish, if he could help it, to produce anything in the least like it. But he was very largely employed by his contemporaries and therefore can not be completely neglected by any historian of his time.

Lethaby tells us that Norman Shaw once spoke in his hearing of Philip Webb as 'a very able man indeed, but with a strong liking for the ugly.' The same words might be truthfully spoken of Butterfield, and—with qualifications—of Street; both of whom were more obviously the artistic ancestors of Webb than they were of Shaw. In the 'ugly' school, to which we owe much of our most sincere and important architecture, it is not always easy to tell a rogue when you see him; many men worked savagely but not apart, egocentrically but with a common motive. Webb was no rogue, but a would-be reformer endowed with a powerful creative imagination; Lethaby was a rogue only from the point of view of Norman Shaw's office whence he sprang. On the other hand, I think that Edward Prior, also one of Norman Shaw's young

men, showed in his work a brave and constant egregiousness that makes it impossible to regard him as a school man in any sense.

Before the year 1880 a Mr. W. H. Lascelles patented a system of concrete construction in which external walls were formed of pre-cast slabs moulded and coloured to simulate brickwork, weather-tiling, or half-timber work. Shaw undertook to provide a picture-book of designs for small buildings, chiefly houses, that could be constructed in this way, and employed Edward Prior and Ernest Newton to help him. From the pages of this charming picture-book the designs made by Prior stick out by reason of the strangeness of their plans and the unconventionality of their elevations. One wonders whether he may not have made a good many others that Shaw could not bring himself to include.

Prior, sometime Slade Professor at Cambridge and the writer of a good history of mediæval architecture in England, was not very prolific as an architect. The largest building of his that I know is the Medical Schools at Cambridge University, which makes a very disrespectful face at Sir Thomas Jackson's potted Renaissance on the opposite side of Downing Street. The design of these Schools was fresh enough when it was first built, in an Arty-Crafty way not completely characteristic of Prior. The Henry Martyn Hall, also at Cambridge, though scarcely more characteristic, shows him in an engaging mood that pervades also the design of a thatched house (unfortunately since burnt down) that was called 'The Barn' at Exmouth. The church that he built at Bothenhampton in Dorset begins to explain why I claim him as a rogue, and his mission-church for Pembroke College, Cambridge, in Barlow Street, Walworth, gives me further support. The mission-church is nothing if not odd, an unkind critic might say that it is nothing but odd. What he could do in this way, when really roused, can be seen in the music school at Harrow. His latest designs became bleaker and bleaker, containing classical elements



Edward Prior: the Music School, Harrow

handled in a way that at any rate showed them who was master at the moment. A typical struggle of this period can be seen in the battle of the pediments that was fought under him in the medical laboratories at Netley Hospital.

In preparing this lecture for tonight I have been forced to do no more than hint at backgrounds that I have had no time to paint. Nothing in English Victorian architecture is more remarkable than the general compactness of the herds from which my rogues have strayed, and the vulgar notion that it was an architecture of anarchic individualism can only be supported by ignorance or political bias (which are much apt to be the same thing). Please remark that I say 'herds' in the plural; the community of first principles that made but one herd in the 18th century had been broken truly enough. But if you re-divide each of the two divisions into which Victorian architecture naturally parts itself—if you re-divide each of these, the Neo-Classic and the Neo-Gothic, into two sub-divisions, the traditional and the eclectic—you will have four categories in all, one of which will contain naturally almost any building not designed by a rogue. Moreover, you will find that in each category the buildings designed in the herds will be much more similar than different.

Thus, if I had had time to work up my pictures, Lamb would have stood out sharply from a background of Scott, Carpenter, and Hadfield; John Shaw from a background of Barry, Gibson and Dobson; Wild from a background of Blore, Sydney Smirke and Vulliamy; and so on. Without the time for doing this I have had to hope that they would obtain sufficient relief from the hazy general early-Victorianism that we all can visualize without much mental evocation. For my last portrait, however, I must be a little more particular. I am afraid it is of one not completely a rogue by my definition, because since his time work not unlike some of his has been done by others. But I want some agreeable pictures to finish up with, and I want to commemorate a little-known and most original architect whose designs will provide them.



James Maclaren: farmstead, Glen Lyon, Scotland

James Maclaren, whom I should like to advertise as 'an architect for connoisseurs', did very little work in his short life, a life that coincided in time with the last years of Norman Shaw's unquestioned supremacy. He obviously knew all the Shavian shibboleths, and could have harnessed his powers to a movement that still had impetus to carry him to recognized success. But he had what Shaw had not, a Parisian architectural schooling, and through that, an independence of the canons of gentlemanlike good taste that Shaw was so ominously instituting with his maxim 'Keep it quiet!' Whether Maclaren, had he long survived his youth, would have developed anything of Shaw's power and resourcefulness can never now be known. What he left us proves only his skill and sensitiveness, qualities remarkable even in the designs he made when still a student. Some years ago I chanced to look carefully at a façade I had often carelessly passed by, the façade of a banking house claimed by an architect whose work was ordinarily of little merit. I discovered to my astonishment that here was what since Cockerell's day has been that rarity of rarities in England, a building in which the classical orders have been applied without a single grammatical mistake. Much excited, I revised in a moment my opinion of the architect professionally responsible, and resolved to re-examine his other works. A little while afterwards I happened to read in a BUILDING NEWS critique of Royal Academy architecture a notice of later additions to this building by another hand. In this notice the original building, of which the nominal architect was dead, was attributed *sans façon* to Maclaren, and at once I saw it all. I put my opinion of the nominal architect carefully back where it had been, and have not bothered about him any more.

I could tell you of another building which Maclaren's ghostly hand aided greatly, but it is time that he came out into the open. He had a discerning patron in the late Sir Donald Currie, for whom he built in Scotland various village buildings displaying a charm and naturalness unapproached by

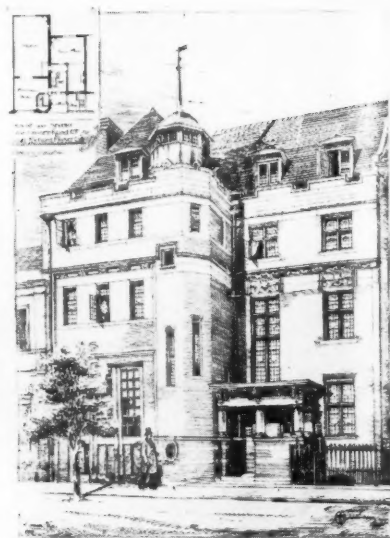
any of his contemporaries. In London he designed for a painter a house and studio whose style owes something to that of Edward Godwin, but much more to Maclaren himself. This house, alas! has now been savagely mutilated (not by the Germans), and can only be admired in drawings.

Finally, I would speak of two houses which Maclaren built in Palace Court, Kensington, fifty-four years ago. I hope that the charm and subtlety of this design speak for themselves. You may have noticed that I have not yet claimed for Maclaren the 'originality' that is the rogue's easiest qualification, and this is because I think he was too good an artist to possess it. Obviously when confronted by the work of Philip Webb, of Godwin, of H. H. Richardson, of the young McKim, he had attended to it instead of shutting his eyes and thinking about himself. In these houses all four of these influences are still recognizably reflected. Had he been allowed to grow older he would, no doubt, have integrated his keen experience, and soon found himself no rogue but a leader. Two architects of great ability did, indeed, follow him in some things—Leonard Stokes and Robert Lorimer. But heaven willed otherwise. He was to die, and those who might have been his followers were to scatter.

And now, what of the arch-rogue, Beresford Pite? Nothing. Having already contributed to the Institute's JOURNAL by means of a lecture most of what I knew of that gifted and beloved rebel, I have spent my time tonight recording stories less known. To conclude let me draw from those stories a moral, in the form of two premises and two questions. Art needs its conformists and its nonconformists. When there is no art neither of these can exist. Are there conformists and nonconformists in architecture today? If there were none should we need them?

#### DISCUSSION

**The President:** I will now call upon Lord Esher [Hon. A] to move a vote of thanks to Mr. Goodhart-Rendel.



James Maclaren: a house and studio for a painter, London

**Lord Esher:** I have been entrusted with the superfluous task of expressing the gratitude which Mr. Goodhart-Rendel knows perfectly well we always feel whenever he gives a lecture in this building.

I have known Mr. Goodhart-Rendel for over twenty years, and I have ceased to be surprised at how well he does it, but I still marvel that he goes on doing it so well. I think that the truth about him is that there bubbles up inside him a perennial spring of puckish imagination which is an infinite pleasure to us who listen to him and from which I notice he derives considerable satisfaction himself. When I listen to his lectures I am always reminded of the American negro's famous remark about religion, 'Religion is believing what you know aint so', and whether it is so or is not so, whether you arrive with any prejudices of conceptions, I always find that in the end I believe what Mr. Goodhart-Rendel has said is true. I think the cause of that is that he leads one along with that sleight of hand or rather sleight of speech. All is so plausible and at that same time so benign that in the end we are led through all the levels of persuasion up to ultimate conviction.

I myself, of course, am only an honorary A.R.I.B.A. All real members of the profession here are slightly more erudite than I am and a great deal more wary, and therefore he does not find it so easy to lead them along the garden as he does a person like me who is an easy victim. I must apologise for using that modern cliché of a 'garden path', which is suburban. The real simile that ought to be used about Mr. Goodhart-Rendel is the mediæval simile will-o'-the-wisp; a thing of fire and beauty, tempting the majority of us, who like to have our feet steadily on the hard centre of the road, down into by-paths of dangerous adventure and exciting experience. I think you will agree this evening we have had both the adventure and the experience.



James Maclaren: two houses, Palace Court, Kensington

I always like to quote about him Shakespeare's lines: 'Age cannot wither him, nor custom stale his infinite variety'. I think it is just possible that after a little while one might get bored with the wiles of the ageing Cleopatra, but we none of us would ever feel that these lines could be inappropriate, to use one of his favourite words, to Mr. Goodhart-Rendel himself.

I have very much pleasure in moving a hearty vote of thanks to Mr. Goodhart-Rendel.

**The President:** I will now call upon Mr. G. Grey Wornum [F] to second the vote of thanks to Mr. Goodhart-Rendel.

**Mr. G. Grey Wornum:** Whenever I see Mr. Goodhart-Rendel I always feel rather like a small boy who is trying to get a bed-time story out of him about his Victorian architects. He very rarely disappoints, and the only disappointment I have is that time is so short and the particular story or its sequel is cut short in consequence.

Tonight we have had a real contribution towards one of the aims of this Institute—a knowledge of the past—which he alone is qualified to dig out for us. He has succeeded completely in keeping to his definition and within his own terms of reference of 'rogue-architects'. Quite frankly I confess I myself have not heard of half the people whose work he has discussed and illustrated. I do not know how the rest of us stand, but there are many strangers to me amongst the people to whom he has referred.

It would be quite impossible in these days for any of us to be rogues, because if we were doing anything particularly naughty our excellent architectural press would be on to us right away, and we would probably at once have a following of some sort.

What Mr. Goodhart-Rendel has not said, and, of course, it is quite impossible for him in the short time available, is how these architects managed to get through all that work with the very limited facilities of the time, with the absence of the typewriter, telephone, publications, photographs, drawings, and with transport diffi-

culties, and the way they managed to get their work done and also to keep their clients, because one would have thought that with this very outspoken criticism that happened in their own time, new clients would be somewhat discouraged.

I am very proud indeed to be in the position of seconding the vote of thanks, and I can assure Mr. Goodhart-Rendall that we are not disappointed.

**Mr. R. A. F. Riding [A]:** When I look at these designs produced by the Gothic revival architects I always come to the conclusion that a great many of the peculiarities and the irregularities and differences from the true mediæval style come from ignorance, and I always feel there that that ignorance is largely the result of education facilities at that time. It must have been extremely difficult for an architectural student of those times, without the aid of the schools, to attain any excellence in architecture. It must have been very very laborious indeed without the ordered programme such as we get at the Architectural Association and the other architectural schools.

**Mr. John Summerson, B.A., F.S.A. [A]:** It is difficult to speak in a general way about a paper which is so full of detail about individual architects, but one thing that has struck me about these rogues is the very decided effect—primitive effect—that their buildings possess. I can remember some of those buildings from long before I was interested in rogues, or, indeed, in the 19th century at all. I can remember, as a schoolboy at Harrow, falling in love with a little building by Edward Prior, of whom I had then never heard, a charming little house which I am sure Mr. Goodhart-Rendel knows, the Manor House on the London Road. It looks as if when you went into the front door you would see a Pieter de Hooch scene come to life.

Then that astonishing Tower at Havestock Hill. The photograph did not really do it justice. There are three open arches, one has the impression that the arches narrow towards the base; the whole thing seems to shoot up from the ground, recalling Milton's phrase—'rose like an exhalation'.

There is also Wild's church at Streatham. It needs no scholarship and no knowledge of the period to be completely won over by his buildings; they force themselves on your notice.

I agree with the last speaker, who ascribed roguery to lack of education; it was undoubtedly lack of education. In the 18th century there were so few architects that they all managed to get into the offices of established men and obtain adequate education. In the 19th century, with the enormous dilution of the architectural profession, everybody was all at sea. It is when everybody is all at sea that roguery is greatest fun.

Perhaps I ought to add one word about James Wild. A good many years ago I did try to discover a little more about him, and I traced a daughter of his, living, rather

appropriately, in Cairo, but the last of my letters to her she did not answer, and as that is a long time ago I do not now see much hope of picking up the threads again, although we would very much like to see in the Soane Museum a portrait of James Wild, because his portrait is the only missing one in our gallery—I was going to say of rogues but I mean of curators.

**The President:** I think perhaps why this paper was not so provocative of discussion was because it was so provocative of thought, but before I put formally the vote of thanks to the meeting, I must thank the reader of the paper for having opened my eyes to the strangeness of St. Simons', Lennox Gardens. I have been in the church, but perhaps I may be excused for not having seen too much of it because the only occasion I was there was for my own wedding.

**Mr. Goodhart-Rendel:** Thank you very much indeed for thanking me, which I feel I hardly deserve. This lecture, on a subject near my heart, has been a very great privilege and pleasure to deliver, and I hope it has interested you.

There is a point in the remarks made by the two speakers, which I should like to take up. It is on the question of education. In the sense in which Mr. Summerson says that architects were all at sea, there I entirely agree, they have been so ever since the 18th century agreement broke up, never more at sea than they are at the moment probably. It is a necessary condition when fundamental ideas are at variance, and I do not know when we shall expect to get enough community of thought and ideals really to be able to help each other as architects ought to. But I do not know that it would be right to suppose that the peculiarities of my rogue-architects in matters of detail that strike one as eccentric came from any ignorance at all. Certainly four of those architects I mentioned had measured and drawn more ancient buildings probably than a whole generation of modern students will ever do. They knew their Gothic detail quite well enough to be determined not to do anything like it. To have produced imitative stuff like Bodley's they would have regarded as being entirely beneath what was expected of people in what they thought, as I suppose we still think now, was the progressive age. We feel we have got to express the age of cinemas, motor cars and all that, and they felt with their needs, as we with ours, that they had not got to do it in old language. The result was that they were all trying to make a new style, and the fact that the new style was not very sensible and was like a lot of little separate blobs of quicksilver that never got together and really coagulated into one mass was, I think, due to an ignorance of first principles from which we still are suffering badly.

That is all I have to say of those comments, and I will not detain you any longer. I thank you very much for having listened so very well, and I thank the proposer and seconder for the vote of thanks.





# The Architect in Industry

## Report of a Conference held at the Royal Institute of British Architects

3 and 4 March 1949. Part I

### SESSION I. Large and Small Scale Industry under Private Enterprise. Sir Percy Thomas [F] in the Chair

The Chairman said that industrial architecture was a field in which very great progress had been made in recent years. It would be hard to think of a subject of greater importance, in view of the vast building programme now before the country. The requirements of industry covered not only the repair of war damage and the making up of the leeway due to lack of building during the war, but also the rebuilding of many factories to make them more suitable for modern conditions from the mechanical and human points of view.

The great development in factory building was due largely to the war-time need to step up production. Today, much greater interest was taken in production efficiency, the layout of plant, and better conditions for the workers. The result had been a demand for large, uninterrupted floor areas and improved methods of lighting (natural and artificial), heating, air conditioning and so on. The immediate future offered very great opportunities to the architectural profession. The future prosperity of this country depended largely on the production efficiency of its industries, and the best brains of the architectural and kindred professions must be used in the design and construction of factories.

It was fortunate that the industrial leaders themselves were turning to architects for help, and were finding what a great service the architect could render them. Most factories in the past had grown in a haphazard manner, but the great complexity of modern industry and the new methods of construction called for the services of a team of experts. Because of his training and experience, the architect was the natural leader of that team. This had been the case in America for many years, but there the other technical experts were on the staff of the architect. Such an arrangement would probably not be suitable in this country, nor would many architects have a volume of work which justified it; but it was essential that new factories should have the services of such a team, and that demanded the closest co-operation between the architect, the structural engineer, the mechanical engineer, experts on heating, ventilating and lighting, and the quantity surveyor.

'It has not always been easy', Sir Percy Thomas said, 'to obtain that co-operation in the past, but my experience shows that a new spirit now exists between the various

professions. Some of my happiest experience of work in recent years has been in collaboration with members of the engineering profession on industrial work. An added reason for such collaboration is that in these large industrial projects time means money to our clients, and, if we are to retain their confidence, the work must be organized and carried out with the utmost efficiency and despatch'.

The Royal Institute would have to consider the question of fees on these very big projects, and the position of the architect who was called in as consultant. Many industrial concerns had their own architectural staff, but for some projects the directors felt the need to call in an independent consultant. That gave opportunities to younger architects to undertake great tasks with the assistance of this permanent staff which they could not carry out without such assistance; they could not suddenly create a staff to do the work.

He hoped that industrialists would not feel that the calling in of the architect was just another charge on the capital cost of the undertaking. In many cases the reverse was true. It was essential to call in the architect in the very early stages, as his advice on the general layout, traffic circulation, disposition of amenity buildings and so on could be of the greatest value. He should not be regarded as concerned simply with the architectural treatment of the buildings; the value of his services was in the planning, design, construction and equipment of the scheme from its conception to its completion. In nearly all the factors which had to be considered in a modern factory, the architect should be able to give the latest advice.

From December 1944 to December 1948 the Ministry of Works licensed over 3,200 schemes, to a value of £140 millions, of which £72 millions was in the development areas. About £72 millions worth of work had not yet been started, because it came under the capital expenditure cuts. That would give an indication of the vast programme of industrial work still before the country.

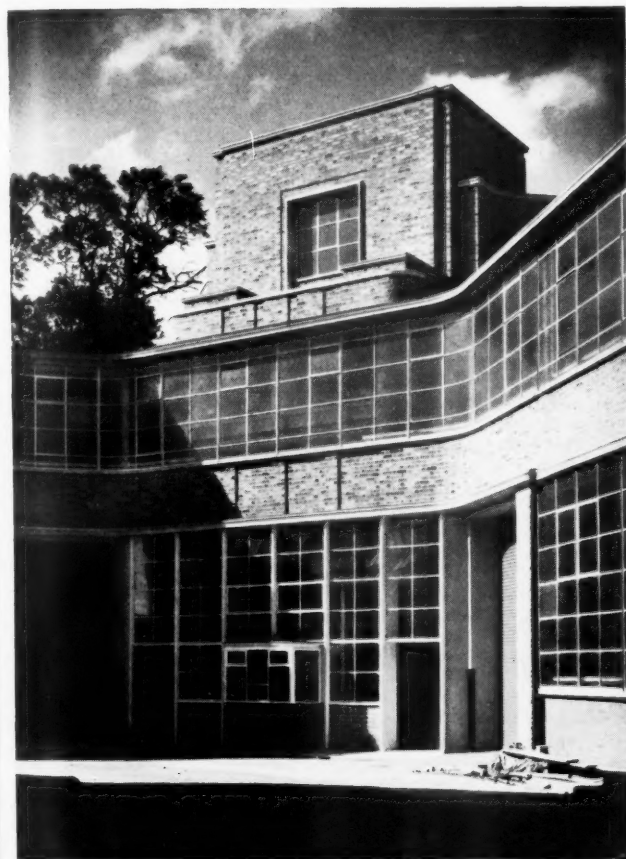
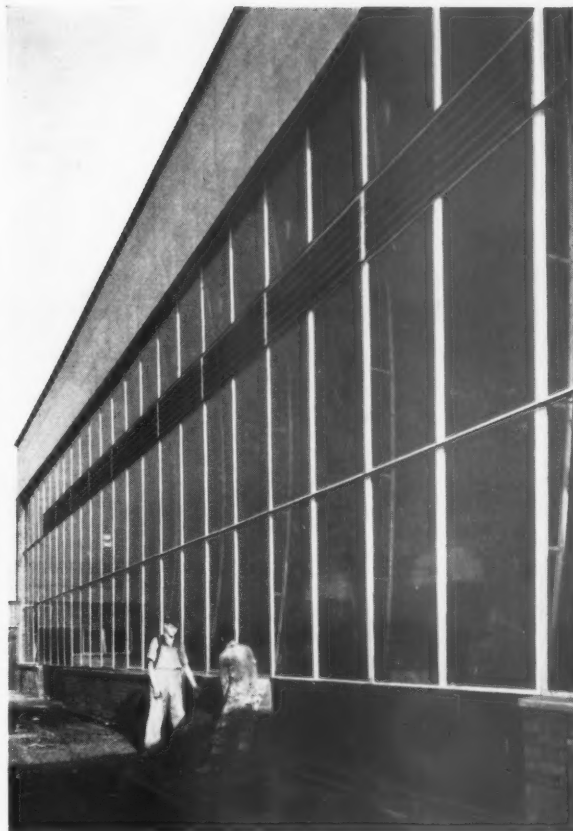
Mr. Anthony M. Chitty, M.T.P.I. [F] said that the factory of the pre-industrial era was, broadly, the kitchen of the agricultural labourer, where he and his dependants worked in the off-seasons of agriculture, making a wide variety of goods. Specialization set in early, but the real revolution

came at end of the 18th century, when a man who had previously made 200 nails a day found that by using a machine he could make 20,000. The machine succeeded the tool; the craftsman became a mechanic, and control of the product passed into the hands of the manufacturer, the owner of the machine.

The growing complexity and cost of the machine called for larger and larger groupings of machines and services, and of human beings. It was probable that a point had already been reached where the unit of 5,000 workers in one plant was too large and inhuman to be practical or in the long run economic. An interesting commentary on this was the dispersal of aircraft factories in 1940-41, when the heads of many firms who did not like the idea of breaking down the mother plant into twenty or thirty groups making components found that their fears were unjustified, and that there were advantages in the small, 'family' unit which even led to increased production. The unit had a more human scale, was easier to supervise, could compete with other units, and was freer from subversive and time-wasting influences.

With the vaster factory units now in use the factory buildings might become a mere shell for the coverage of highly valuable and often comparatively immovable plant. 'From 1941 to 1943,' Mr. Chitty said, 'I was responsible for the construction and equipping of £50 millions worth of war factories, and I found, taking over 3,000 factories, that the cost of the shelter was only a fraction of the value of what was sheltered. In the machine shop the proportion was about one-tenth; the average might be one-quarter.' In the factory buildings of a hundred years ago those proportions were reversed; the building was still an edifice or monument, and not just a mackintosh providing protection against the weather. The extremity of this trend was reached where, as sometimes happened, the plant, without cover, became itself a feature of the landscape.

The relative value of the factory shelter and the factory plant, combined with the flexibility and generous scale of the financial arrangements possible with factory buildings (e.g. industrial derating, depreciation allowances, short-term replacement possibilities) opened up a range of exceptional opportunities for keeping abreast of the latest developments in planning, con-



Some factories illustrated in the R.I.B.A.  
Exhibition "The Architect in Industry"

Top left: the Berlei factory, Slough. Architects: Sir John Brown, A. E. Henson & Partners [FF]. Top right: power house for the Bristol Aeroplane Company at Filton. Architect: Eric Ross [A]. Bottom left: Factory for Henry Meadows, Ltd., Wolverhampton. Architects: Jackson & Edmonds (Birmingham), [FF]. Bottom right: factory for Linotype & Machinery, Ltd., Altrincham. Architects: Harry S. Fairhurst & Son [FF]

struction and economic administration which was too little exploited. Too many of our industries were housed in premises which were both barbarously obsolete and cruelly uneconomic to maintain.

What were the present possibilities? In the construction field a whole range of new products and techniques had been thrown up by the war. The two chief requirements of building, insulation and support, had hitherto been met in most uneconomic ways. Brick and concrete walls, if of sufficient insulation, were redundant in strength; if economically stressed, they were incompetent as insulators. Masonry construction was bulky and inflexible, difficult to adapt to changing plant requirements.

To some extent these difficulties were overcome by the steel frame with sheeted covering, and in some cases an insulating lining. The new products which could be applied here were units of a sandwich type, of light weight. With one of these, for instance, he had built a house which had a waterproof stressed skin  $\frac{1}{2}$ -in. thick, a 2-in. insulating core with a thermal transmittance coefficient equivalent to that of an 18-in. brick wall, and an internal decorative veneer, the whole being easily handled in panels  $8 \times 3$  ft., weighing 50 lb. each. The application of such a panel in factory construction implied reduction in initial steel frame costs and in running fuel costs and the possibility of unlimited salvage and re-use if alterations were made to the layout. Materials with high strength to little weight, such as aluminium and magnesium, would play an increasingly important part in building technique.

Further developments at present being explored included the application to industrial buildings and their service runs of the numerous clipfixing methods used in aircraft construction, which obviated the use of hammer and screwdriver, saved time, and permitted rearrangement of service runs without damage to structure. Another vast field now opening up was that of plastic coverings for cables and electric wires, and synthetic conduit. In many cases life was lengthened and painting and other maintenance charges reduced.

Lighting offered more room for development than any other factory service. For natural light Albert Kahn, the American architect, early discovered the merits of the monitor type roof and the glass wall as compared with the northlight truss and solid wall more usual in this country, but even with this type of roof a more efficient daylight distribution had been evolved during the war which was almost shadowless. In artificial lighting the main war-time increase in efficiency had been the stepping up of intensities at the working plane. Fluorescent tubes were taking the place of the filament lamp, but there was much still to be done in the study of glare and the blending and differentiation of light sources for different activities.

Noise and its suppression was a scarcely explored field for industrial research. The present weakness was the link between physicists and doctors; there was no clear

picture of the damage to the individual, and thence to production, due to the impact of noise. The use of sound absorbents, of baffles, etc., which had had surprising results in commercial buildings, was almost untried in the industrial world. The present habit of using more noise to drown the noise, under the euphemistic title 'Music while you work', was of doubtful long-term benefit.

Nowhere was the need for reform of the factory so great as in its general 'atmospheric' character. Here the Scandinavians and Swiss were greatly in advance of ourselves and the Americans. During the war there had been a shift of the emphasis of social activity from the village hall and the pub to the factory canteen and its ancillary buildings. The first-aid post of the pre-war factory became the health centre, and welfare arrangements of every kind were added to it.

What had been necessary to increase wartime production might stay as a permanent trend. Already town planners questioned the old idea of segregating industry in one area of a town, and the plans for the New Towns were beginning to sub-divide the industrial areas into smaller units and intermingle them with the residential areas which housed the workers. The need for less austere workplaces was therefore obvious, not as a philanthropic whim, but in the interests of production. It would help in the competition for labour, and if, as the population forecasts predicted, the population of this island was to be reduced in two generations from 50 to 30 millions, with a growing proportion of older people and a dwindling and less efficient labour force, the importance of overhauling factory amenities could not be exaggerated.

Perhaps the most important requirement was the reintroduction of the human scale. The individual working on the interior floor spaces of a great factory, out of sight of sun, sky and vegetation, acquired an unbalanced view-point, and when a hundred workers shared that unbalance their work would suffer and discontent prevail. Factory space should be broken down into smaller units and interspersed with grass, trees and flower-beds. Many industries were capable of division into separate units, and additional elbow-room between the linked parts might increase efficiency.

Women in the factory had come to stay, and the appearance and character of the factory must be modified accordingly. There was need for every kind of scientific ingenuity to reduce noise and to increase colour, safety, ease, ventilation and lighting, to create incentives to happier conditions and greater output. This would be coupled with motion studies in particular industries, which already indicated that the plain rectangular one-piece covered area was not always the most economic and efficient.

Northlight and monitor roofs were not the only shapes for efficiency and economy. Shell concrete vaults had for years been used in Central Europe, and with the shortage of steel were now being more used here. Pre-stressed concrete should permit economy in material and reduced costs.

Other factors for consideration were underground conveyors for rubbish and swarf, crawlway ducts for hidden and combined services, electric thermal storage gathered at off-peak hours and smoke elimination.

Finally, there was the advertising opportunity afforded by 'day and night' architecture. The structural freedom given by the new materials made it possible to exploit the building itself as its own advertisement, both by day and by night. No printed advertisement had the emotional impact on the observer given by the blaze of light from a factory and the sight of the humming activity of the night-shift. Increasing air travel suggested the importance, from an advertising point of view, of proper grouping and design of large buildings as seen from above, the important elements here being colour, texture, shape, layout, lighting and planting.

Lord Forrester, M.A. (Managing Director, Enfield Cables, Ltd.), said that industry should give up the facile process of thinking which allowed it to imagine that a factory was a box or a shell or an envelope or a machine for working in or even, as Mr. Chitty said, a mackintosh. A factory was basically a place where valuable raw materials were converted into finished products of greater value by the application of labour of hand and mind and the working of machines; and the finished products must, under private enterprise, be saleable at competitive prices.

The building itself was one of the major sources of profit or loss in that operation of conversion. It had to be written off, perhaps, over sixty years; it had to be maintained; and its structure and layout affected basically the annual cost of maintenance. It had to maintain the health of the individuals who worked within it. It was more important than any single item of those activities which had come to be grouped together as welfare; the working environment itself was the most important—the air, the light, the colour that surrounded the individual at his job. Even today the worker spent between a quarter and a third of his working life in that environment, and its design was at least as important as the design of housing, to which hitherto more attention had often been given.

The architect, if he was called in, had to consider not only the very important items mentioned by Sir Percy Thomas and by Mr. Chitty, but also the type of process which was to go on in the building. Those who believed that a factory was a box were generally concerned with the production of consumer goods, and very often that meant the assembly or processing of parts by a number of machines, many of them of the same type as the neighbouring machines, and a certain forward flow of the product from the component materials to the finished article.

Those who thought only in that way had no conception of what industrial manufacture as a whole was. The future of this country, and of any industrial country, depended not on the number of its consumer goods industries, but on the amount, the variety and the efficiency of the basic



processes that lay behind them. If the architect was going to do all that he might do in industry, an understanding of those basic processes, of the flow of goods and the circulation of people attached to them, was essential.

The basic need in the design of the form of industry for the future was a realization of what was the right size of the working group. There was a tendency to admire the large factory and to forget the mass of smaller factories which were really doing the job, and which even in the U.S.A. were in the great majority, and could show figures of output per head in advance of the six or seven thousand really large corporations over there. The size of the working group was fundamentally a matter of the relationship between the individual in charge and those with whom he worked, and not only between the individual and the vast building inside which he spent his working day.

We should plan our new factories in terms of full employment. In the past, the tradition had often been to put one process into one factory, or to build a factory which could be extended. If a factory could be indefinitely extended, it did not follow either that it was an efficient factory or that it was a pleasant one to look at. Fundamental thought was needed on those two points.

Factories must be planned with a detailed knowledge, which must be imparted by the works manager to the architect, of the circulation of people involved by the production process. It was possible to plan the circulation of things almost anyhow—in straight lines or circles, up and down through several floors, using gravity or ignoring it—but people had still to come in at the front door or the works entrance, to go to the canteen or to the lavatories, and so on. It was factors of that type which affected the design of new buildings, and which the architect and the works manager must understand together before they would together produce a better answer than either could arrive at by himself.

In planning for full employment, proper facilities must be provided for the engagement of new staff, whether they were what industry called 'staff' or what industry called 'workpeople'. Their reception, as well as their continued employment within the factory, must be intelligent and humane. That was fundamentally an architectural as well as a managerial job. Once they were in the factory, facilities must be provided for continued training and education within or around the building, in association with similar provisions in the adjoining community; because without such facilities and co-operation with the education authorities the standard of production and technique would not continue to rise, and without that the best factory in the world—the best as a building—would be of little value in the long run.

Coming to some practical details, the working floor was a factor of extreme importance which was generally overlooked. It must be more than pleasant to stand on, of the right colour and texture, and free

from dust; it was the place from which or through which the great bulk of the services to the complicated plant must come. The alternative was that they should all come from above, and, if they did, the festoons, the lanas of pipework and cables made ridiculous the best work of the architect and made dangerous the maintenance and alteration of those services. Factory floors should be designed to be right in colour, texture and strength, and also so that the services could come up from them to the machines, almost invisibly but always accessibly.

Another important factor was the works entrance and the time recorders, or whatever method was used. The works manager generally thought of such details towards the end of his planning, and then placed a row of recorders along the wall. The architect who had studied the problem could put forward much more efficient arrangements, which would be cheaper and quicker to operate.

A third factor was the layout of offices in relation to factory buildings. The conventional layout was to have a façade of offices along one side of a square, which was the factory, with a front door amongst the offices and the works entrance round at the back. Was that the most intelligent way to lay out the offices or the factory? In some of the buildings in the Exhibition upstairs the architects had thought otherwise; and the industrial concerns for whom those factories were provided were by no means the unsuccessful ones, or ones to whom costs did not matter. That was significant.

Industry had to come to a new realization of the importance within and without the factory of colour, intelligently applied and used. It was partly physiological, partly psychological and partly a matter of applied common sense. Many good works managers in this country thought that a green dado with a black line above it to separate it from the cream distemper would be the most efficient decoration of its kind, because it would not show the dirt. It did show the dirt, because dirt was not black or green; but it was the attitude that was wrong. It was another instance of where the architect, working co-operatively with those responsible for production, could produce something better.

With the architect must be coupled the landscape architect who, outside the building and sometimes even inside it as well, could do things which were inexpensive and which might involve the work of only one man for maintenance, but which gave the factory a more pleasant setting, the colour of which changed with the seasons.

There was tremendous scope in factories for the better design of lavatory buildings. A plan got out by the Industrial Welfare Society showed that a washroom could be arranged in a relatively small space, with all the fittings centrally arranged, so that the walls were not splashed, and with mirrors and place for toilet articles along the walls. If on going to a factory one asked to see the lavatories, one could tell very quickly with what type of works manager one would be dealing.

Replying to questions, Lord Forrester said that his methods of dealing with services, which were ideal for a single-storey building, could be applied in a multi-storey factory. The 'dark, satanic mills' of Lancashire and Yorkshire were in trouble today because those who built them chose a multi-storey arrangement to house a process— weaving in particular—not suited to that construction. It should be possible to arrange the services in ducts in the floors of a multi-storey building. The works of the British United Shoe Machine Company in Leicester were on three or four floors, and ducts were arranged which brought the services to within reach of any machine, the ducts being arranged on a criss-cross grid.

On the question of the best situation for offices, he said that the commercial offices should probably be in a separate building, linked with the factory by a tunnel, bridge or surface covered way, but separate from the factory building so as to have light on more than one side and be free of the noise of the factory. It should be within immediate reach of the factory; to have the commercial office in London and the factory in Renfrew was meaningless. As long as it was within internal telephone distance of the factory that should be sufficient. The works office, of course, was part of the factory, and the works offices need not all be in the same section of the building, but should be arranged to be in direct contact with those parts of the factory with which they were most concerned.

*After a ten-minute interval, two further papers were presented, one by Mr. C. S. White and one by Mr. Paul Cadbury. The Chairman said that Mr. White was unfortunately ill, and his paper would be read in his absence by Mr. Eric Bird, Editor of the R.I.B.A. JOURNAL. Professor Basil Ward, Mr. White's partner, was present and would answer any questions on the paper.*

Mr. C. S. White [F] wrote that there were three ways in which an architect could contribute to industrial building: (i) by providing buildings of a given floor area, but without regard to the specific process to be accommodated; (ii) by providing buildings to suit a layout of plant for which process plans had been prepared in advance by the client's staff; and (iii) by collaboration with the client from the beginning, which involved studying existing processes, if they existed, and determining faults, and then devising new process plans and determining routing for all departments without regard to buildings as such, and lastly providing buildings to house a well-studied process. After some experience of all three methods, he had found the last to be the most satisfactory.

No two processes were alike. The architect should first study the particular process from raw materials right through to despatch. In most cases the process already existed and, having developed over a period of years without orderly planning, was inefficient and needed reorganizing and extending. Alternatively, it might need to be scrapped entirely and a new factory built.

The architect would require plans of the existing factory showing all plant, equipment

and drains. Such plans seldom existed, or, if they did, were often unreliable and incomplete. A proper measured survey was sometimes necessary, and was essential where extensions were to be made to an existing factory. With these plans, the architect should first study the existing process thoroughly and then examine it critically to find out its faults, questioning the management on their present use of manual and mechanical handling, bench space, gangway space, process lines and routes. The management knew pretty well where the faults were, but the architect with a fresh eye could often detect a weakness which had escaped notice.

The architect was now in a position to discuss matters intelligently with the management, who might appoint one person (usually a works director) plus co-opted departmental managers to attend conferences.

In planning the factory it was first necessary to consider the site as a whole—the entry of raw materials, the despatch of finished products, the general location of entrances, controls, clocking, weighbridges, offices, canteen, laboratories, welfare and other blocks, and provision for future extension. The provision of water and other services and the disposal of process effluents were important at this stage. The planning of the actual process and the incorporation of modern methods of handling could then proceed, the drawings being prepared either by the architect or by the client's drawing office—possibly by both in collaboration.

Some headings under which process planning should commonly be considered were:—

The logical sequence of departments.

Direct flow.

Manual and mechanical handling (carrying, trucking, conveyors, etc.).

Provision of adequate gangways.

Space for buffer stocks between departments (essential where some were on a seven-day week basis and some on a five-day basis).

Provision for future extension of certain departments without disturbing the main-flow line, which was sometimes difficult.

Up to this stage the physical shape of the buildings had been immaterial; it was a process which had been planned. Gradually, however, the positions of service trenches, machine bases, conveyors and so on were determined, and consideration could be given to the enclosing structure. Tight planning must be avoided; the architect must never assume that the dimensions first given for plant, fans, motors, etc., would not be exceeded when final details were received from the makers. More room should be allowed than was first demanded and proper provision made for extension when this was likely.

When designing the actual buildings, attention must be given to:

1. The degree of permanence desired by the client. Here economy in first cost had to be balanced against the cost of maintenance.

2. Provision for extension, and sometimes the need to build in stages.

3. Whether a single-storey or multi-storey layout was appropriate for part or all of the process.

4. Loads, both imposed on floors and suspended from above.

5. Provision of voids in floors and roofs for services and equipment. This was most important.

6. The nature and intensity of daylighting.

7. The services. These were tending to become more and more complex, and might well include heating, hot water supply, ventilation, electricity (possibly a.c. and d.c., and more than one voltage), gas, compressed air, steam, sprinklers and special fire extinguishing appliances, telephones (Post Office and internal), call signs, lifts and hoists, conveyors and pneumatic tubes, process and other drainage, and dust extraction. Accessibility and identification of all services was very important.

8. The type of structure, its roofing, floor finishes, colours, etc.

9. Cloakrooms, washing rooms and lavatories.

10. The ancillary buildings common to almost all factories—the office block, canteen, welfare unit, gatehouse, and maintenance block.

11. Roads and parks for lorries, cars and cycles.

In conclusion, he emphasized the following important points for the guidance of both clients and architects.

Time was well spent on thorough study and research at the beginning. To rush into a building enterprise with inadequate preparation always involved costly alteration, delay, and unsatisfactory results.

The administrative work should be done by a team comprising the architect (in control), the quantity surveyor, the consulting engineer for steel and reinforced concrete, and specialists, or in some cases consultants for heating and ventilation, electrical work, mechanical handling and other plant. This team should collaborate from the beginning, or at least from the stage when the form of the buildings first began to take shape on the drawing board.

When the building work began, it was hardly necessary to emphasize the importance of good general contractors with an experienced agent or foreman, a capable resident engineer or clerk of works, or both, adequate supervision by the architect and other members of the team, and regular site meetings.

As the work proceeded, some alterations were bound to arise due to 'second thoughts' on the part of someone, but these should be reduced to a minimum by careful study in the early stages.

Risks should never be taken with work below ground. Proper soil investigations should be carried out and the adequacy of foundations and drains ensured. Economies could be made above ground, but one should not risk having to underpin column bases within the factory after a few years.

Finally, a respectful word to clients. They should never give instructions direct to a contractor or sub-contractor, but deal entirely through the architect. Divided con-

trol confused everyone and led to mistakes, friction and extra costs.

**Mr. Paul Cadbury, C.B.E.** (Director, Cadbury Bros., Ltd.), said he spoke as a client, and as one who had been, all his business life, 'at the receiving end of this business'. His job was to look after the sales and commercial policy of a large firm, but for thirty years he had sat on a weekly board of managing directors which considered the recommendations of a buildings and developments committee.

The standard of living of the people of this country depended entirely on what we grew, what we extracted and what we made, and of the three the manufacturing element was by far the most important. Industry was carried on in a multitude of factory buildings. In Birmingham before the war there were over 13,000 separate factories, of which only 38 employed over 1,000 people and under 200 employed between 250 and 1,000. Of the 12,683 separate factory buildings which contained less than 250 people each, many were very small, but in the aggregate they were responsible for the employment of between 40 and 50 per cent of all the factory workers. What was true of Birmingham was true also of almost all the other towns in the Midlands and of a great deal of the industry of the country as a whole.

In designing buildings to house industry, the main need was for them to be satisfactory from an economic point of view, the ultimate issue being the cost of production, on which depended the ability of our industry to compete in the markets of the world. If even sheltered industries were extravagantly housed, the cost of production would reflect itself in other industries.

Distribution was important. About one-third of the total cost of all consumer goods was represented by the cost of distribution, and no small part of this was the cost of shops and warehouses.

The Industrial Revolution had left us slum houses for our people and slum factories for our workers. Very little had been done to survey the amount of sub-standard factory building. The West Midland Group, with which he was connected, had made a very careful survey of factory buildings in the Midlands. They had visited a great many factories and determined certain standards for good, moderate and bad factories. No figures were published at the time which enabled factories to be classified by the number of workpeople engaged, and therefore they had adopted the acreage method of assessing the volume.

Those which they called bad they thought should be immediately replaced in any re-planning scheme. That had nothing to do with the town planning aspect of the matter, though many of those factories were jumbled up with housing and in any case would be pulled down in town planning schemes. In Birmingham, most of these buildings were either converted houses or old, narrow workshops of the 19th century. The buildings classed as moderate should, they suggested, be lived for not more than thirty years, and within that

period replaced. They included in that group a good many temporary buildings. The good buildings were mostly built since 1914, but by 'good' he did not necessarily mean buildings with beautiful brick frontages—a heavy iron and steel process might be properly housed in a sheet-metal exterior—but buildings suitable, so far as they could judge, for the purposes for which they were erected.

There were in Birmingham 198 acres of land covered with slum factories, representing 8 per cent of the whole; there were 631 acres in the intermediate class, or 26 per cent, and 1,612 acres, or 66 per cent of the whole, which were good. In Smethwick, a typical Black Country manufacturing town, there were 81 acres (22 per cent) in the 'bad' class, 100 acres (26 per cent) in the intermediate class, and 199 acres (52 per cent) in the 'good' class\*.

He would draw attention to some things which affected all factory rebuilding, having in mind particularly the smaller factories. The street front was less important than where the workers worked. In his own city, a very nice elevation on the street front sometimes covered appalling conditions behind. During the war, one of the Ministries made an inquiry in certain factories to find out the factors which made people happy at their work. At Bournville, which was one of the factories chosen, they had reasonably good canteen and recreational facilities, but what stood out in the replies given were such remarks as 'Because the room I work in is light and pleasant', 'Because the place in which I spend my time is pleasant'. It was not 'Because I have nice people to work with' or 'Because there is a good canteen', or anything of that kind, but 'Because the place I work in is light and bright, and I do not have to work in artificial light'. It was impossible to over-emphasize, in this enormous building programme, the importance of the workroom.

Colour was also enormously important. Even if a factory had only a three-year life left, it would pay the factory owner to spend money on a spot of paint. They had had a lot of fun at Bournville in playing about with new colour schemes—pale-blue ceiling, buff walls, yellow window-frames, pillars in pastel pink, the dado in peacock blue. There was opportunity for experiment, because even the best paints did not last for ever. By painting cubes in various colours it was possible to judge the effect of light and shade on them. In a top-lit room, a very bright pink used for the machinery (large coolers) proved most effective. Bright yellow for trusses under a blue roof was also very effective. Even the most dreadful old buildings could be made psychologically more attractive by 'suitable colour contrasts'.

At Bournville they did not put their offices in special blocks, but put them in the factory buildings, for two reasons. Firstly, it was fairly easy to move offices around, and when processes were changed that might be found convenient. Secondly, the commercial office had itself become a

factory department, with its batteries of Hollerith machines and calculating machines.

On the problem of co-operation between engineer and architect in large factories, nearly thirty years ago they had called in an eminent architect to design an elevation for a very elaborate factory building, and it had not been a success. It was not fair on the architect or the engineer. Their dining-room block, where up to 6,000 meals were served every day, was designed by an architect as the result of a competition, who also acted as consultant when the cocoa block, a six-storey building which was an elaborate box of machinery, was rebuilt. They employed architects as part of their architectural and engineering organization, and did most of the work themselves. In other buildings, put up in the 'thirties, it was difficult to tell where the architect began and the engineer left off; it was an entirely co-operative effort. The only large factory they had built since the war was a milk processing factory in S.W. Ireland. There the architect and their chief milk engineer worked together, and the result was very pleasing and entirely functional. Where the firm was large enough to employ architects and engineers in a team, team-work was the only proper solution, and the architect must come second to the engineer in the final decisions.

For the small factory he did not know what was the right set-up. Many of the small factories in Birmingham must be in a group; in the jewellery trade, for instance, there were gem setters and polishers and metal workers, and there, the machinery not being heavy, the flatted factory might be the ideal solution. It would be a case of the architect collaborating with an industry rather than an individual firm. He was a great believer in the trading estate system, whereby space was let on a larger or smaller basis, depending on the success or otherwise of the trading firm, with the trading estate as a whole keeping a regular level.

'The architects and craftsmen of the Middle Ages', he said in conclusion, 'left us the great churches as a permanent record of their skill and a supreme example of functional building. The Victorian architects left us an appalling heritage of terracotta and neo-Gothic. The need of this age is for tens of thousands of new factories, and especially the great mass-production plants of the next generation. Here is the opportunity and the challenge.'

## DISCUSSION

Mr. Paul Cadbury, asked whether pleasant colour schemes merely made the workpeople happier or also made them work harder, said the two things went together. The problems of industry were not to be solved by painting factory walls, and the man who set the piece rates was more important, but colour was important, and might start the ball rolling for improvements in other directions.

Asked whether the amenities were grouped centrally at Bournville or spread out among the various sections of the factory, he said that the dining-room block

was kept outside the factory, though part of the buildings. Cloakrooms and lavatories were spread over the factory area.

Referring to Mr. Cadbury's statement that, while there was team-work, the engineer had the final word, a questioner asked why an engineer concerned with processes and machinery should have the last word on the structure which enclosed them, any more than that the architect should have the final word on the layout of the process. Mr. Cadbury replied that he himself had the last word as the managing director of the business, though he was neither an engineer nor an architect. It was partly a question of the complication of the engineering process, particularly with a continuous process which involved designing not only the machines, but the linking conveyors between them. At Bournville the chief engineer was responsible for engineering and architecture, but it was ultimately a question of the individual rather than of the skill which he exercised. What was important was not whether the engineer or the architect had the final word but what sort of a man he was.

A questioner, referring to the set-up for small-scale industry, said there was a tendency to relegate it to so-called standard factories, but in his experience such factories had rarely proved satisfactory from the production point of view. Professor Basil Ward, replying on behalf of Mr. C. S. White, said that each small concern should be treated on its merits. Trading estates and standard plans for giving covered space and services were an economic solution in many cases, but not all.

Asked to express an opinion on the method, sometimes adopted in America, of excluding daylight from the factory altogether, using fluorescent lighting, and colouring the walls to give an impression of space, Mr. Cadbury said that at a large chocolate factory in Pennsylvania the very elaborate office block was built with no windows at all, but with a little indicator on the wall to show whether the sun was shining outside or not, and with temperature control, so that if it was cold outside the temperature inside was lowered a little. His feelings about that building were unprintable, and he would hate to work there.

A speaker said he was perturbed to hear so much emphasis placed on the specialized factory building, to the detriment of floor space to be used for light industry and general purposes. A job such as Bournville had to be designed from inside as a specialised building, but he would put in a plea for the more generalized factory which had to serve a multitude of purposes, changing from week to week.

Professor Basil Ward agreed that there was a very great use for the large covered space which permitted elastic planning. The economics of it must clearly play an important part in the decision. Exactly the same problems were beginning to arise in laboratories, where it was necessary to give covered space without too many supports and with services which could be coupled up to meet special needs as they arose. He

\*This classification has been somewhat over-simplified. The full figures are given in *Conurbation*, a book recently published by the West Midland Group.



would again emphasize, however, that small concerns must be treated on their merits; a small concern often required to be individual not only in the work which it did, but in expressing itself in the community in which it worked. There was a feeling of pride not only on the part of the manage-

ment, but on the part of all those who worked there; there was less of the robot spirit in the small concern. There was, however, a real need today for the large covered space of standard plan with only a small number of internal supports and with services which could be coupled up at will.

## SESSION II. Nationalized Industries

### Chairman: The Right Hon. Lord Citrine, K.B.E., Chairman, British Electricity Authority

The Chairman paid a tribute to the organizers of the Conference and Exhibition. He had been impressed, he said, by the very wide sweep of the architect's work as depicted in the Exhibition, and he thought that the very title of the Conference, 'The Architect in Industry', represented a striking change in the public mind as to the responsibilities of those who were at the head of our industries. It had only in recent years been accepted as a principle that the architect had his rightful place not merely in the design of a particular building, but in the planning of the enterprise; but there was a growing recognition in industry that, if the best results were to be achieved, the architect must be brought in at the very earliest stage and must take his full part, in collaboration with the engineer and others, in the broad design of the project. That should be axiomatic, but in the past it had often been overlooked, and it had been assumed that a broad engineering training qualified a man as a designer. Engineering training did involve design, but in the wide conception of structure, as distinct from machinery, the best results were not achieved when it was left entirely to the engineer to determine both the structure and the machinery to go inside it.

There had always been pioneers in private industry who realized that drabness and ugliness were not essential characteristics of efficient production. Beauty and good surroundings were in fact essential features of modern, efficient production. There had always been those who had recognized that, and whose achievements had stood out in consequence; but, whatever might have been the conception of individuals in private industry as to their responsibilities to the community for the preservation of amenities and for keeping abreast of the highest achievements in design and architecture, that duty was and must be very prominently in the minds of those associated with nationalized industry.

The era when great architectural achievements were determined largely by the private fortunes of individuals had almost disappeared; more and more it would be the nationalized industries and public institutions of this and other countries which would determine the highest quality of the architect's work. If they did not rise to their opportunities and responsibilities, it would be a poor look-out for architecture as a whole.

The nationalized industries, therefore, had special responsibilities for maintaining the highest attainable standards. These in-

dustries were growing, and would play a large part in the economy of this country. There was clearly a wide sweep of construction lying ahead, in which the architect should find his rightful place. He believed that those associated with these nationalized industries were conscious of their responsibility. In the two industries with which he had been connected—coal mining and electricity supply—that was demonstrably true.

Mr. Kenneth Campbell, who was to give a paper that afternoon, had done much to demonstrate, against a sordid colliery background, how much beauty could be imported into buildings and what great amenities could be provided for the miner. 'It was my privilege', Lord Citrine said, 'to be associated for a short period with the coal mining industry as Chairman of the Miners' Welfare Commission and as the member of the Board responsible for manpower and welfare. I was enthused by the work which was being carried on by the architects of the Miners' Welfare Commission. I am happy to say that one of the first decisions of the National Coal Board was that in the construction and reconstruction of collieries the architects of the Commission should be brought in to give the appropriate advice'.

Sir John Hacking was to speak about the electricity supply industry, an industry which had to look many years ahead and have a planned programme for its activities, which meant that it lent itself to a broader perspective of the function of the architect in connection with the total programme than was possible in many industries. The fact that a capital development involving some £400 millions would be embarked upon in the next few years, much of it in buildings of immense size, in positions where it was imperative that amenity should be preserved, if not enhanced, showed what scope there was for the architect.

It was necessary to balance, in all these matters, the economic considerations against the aesthetic. The two were not in rivalry, but it was a proper sense of balance which determined in most cases what should be done. The policy of the electricity supply industry would be one of the closest co-operation with all bodies that had as their purpose to raise standards and to maintain the highest standards of development in public industries. The Royal Institute had already had both formal and informal contacts with the B.E.A. on certain common problems, and the Royal

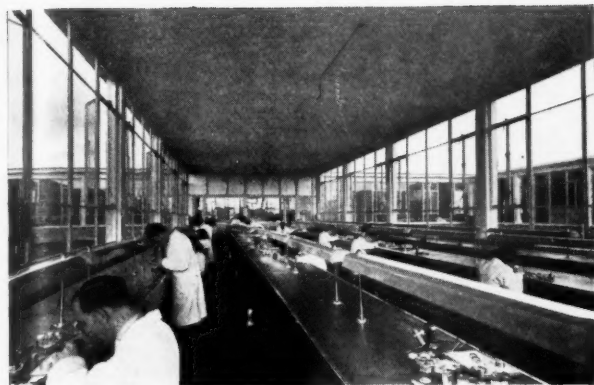
Fine Arts Commission had a statutory right to have submitted to it the plans of proposed power stations.

Sir John Hacking, M.I.E.E., Deputy Chairman (Operations), British Electricity Authority, said that 49 per cent of the total energy generated was used for industrial purposes, and in view of the high rate of employment in this country and the need for increased productivity per worker there was a strong case for the further mechanization of industry, which would involve correspondingly increased supplies of electricity. The American worker had at his disposal about two and a half times the horse-power available per worker in this country. Increased industrial output would improve standards of living and so increase the demand for electricity for commercial and domestic purposes.

The growth of the electricity supply industry had been rapid, the number of units sold being six times as great in 1948 as in 1926, but there was no reason to think that the saturation level was being approached; in 1946 the consumption in America per head of population was 1,360 units, compared with 810 units in this country. As the construction of a new generating station, from the decision to proceed to final commissioning, took about five years, it was necessary to try to forecast the probable load five years ahead and decide on the total capacity of new plant required to meet it. During the war the programme was necessarily very greatly curtailed, and since the war there had been difficulties due to the change-over to peace-time production and shortages of labour and materials, so that the available capacity of generating plant at present was inadequate.

To make good the leeway and provide for development, plans were made to increase the present output capacity of 11,500,000 kW. by some 60 per cent by the end of 1952, but owing to present economic difficulties that programme had had to be curtailed; even so, the restricted programme would represent each year about three times the average of the five years preceding the war and more than twice the maximum rate of commissioning ever before achieved.

The installation of additional plant in existing stations was normally quicker and cheaper than the construction of new stations, but was not always possible, and it had been necessary to include 24 new stations in the programme up to 1952. The selection of suitable sites was very difficult. A 360,000-kW. station must either circulate through the condensers and return to the source 15-18 million gallons of water per hour or pass a similar quantity through cooling towers, in the latter case 5 million gallons a day being required for make-up purposes. In some cases purified sewage effluent could be used, where the station was situated close to the sewage works of a large city. Sites where the requisite quantity of water was available were usually limited to the lower reaches of large rivers and tidal estuaries. Another reason for the selection of such sites was that the coal, of which up to 3,500 tons a day might be used, could be sea-borne.



Top left: factory at Cheltenham for Smith's English Clocks Ltd. Architects: T. P. Bennett & Son [FF]. Left below: factory for Easiwork Ltd. at Gillingham, Kent, under construction. Architect: Joseph Emberton [F]. Top right: power house at new steelworks for the Appleby-Frodingham Steel Co. Ltd. Architect: Frederick Gibberd [F]



Press-shop Handley - Page Ltd. Architect: Howard V. Lobb [F]

Where the Authority were planning major reconstructions on existing sites or new construction, steps were being taken to ensure that the new buildings were constructed on modern lines and in conformity with the best architectural standards. For their new stations the Authority did not wilfully choose beauty spots or the best agricultural land, but owing to the need for water it usually happened that the new stations must be in river valleys, which were normally beautiful and contained fertile land. The objections raised to the construction of new stations, sometimes culminating in local inquiries, caused considerable delay, and in the past it had often been impossible to obtain the approval of the planning

authorities in the time available. The B.E.A. were at present carrying out a survey throughout the country to find possible sites for future stations, and hoped to be able to discuss their proposals with the planning authorities well in advance.

While it must be admitted that in the past many stations had been built purely from a utility point of view, and had had no architectural merit, it was the Authority's intention that the design of all new stations should be entrusted to competent architects, and every care would be taken to see that they were as attractive as possible, and steps would be taken to reduce the emission of grit, dust and fumes. In the centre of cities gas washing plant would be installed

to extract the sulphur, so that no harmful results could be caused to the fabric of nearby buildings. It was by no means certain that this was advantageous, in view of the dispersal of the chimney gases, but all new stations would be constructed so that this equipment could be installed if desired.

The British Electricity Authority welcomed criticism, provided that it was of a constructive nature. They believed that such criticism, based on a sympathetic knowledge of the requirements, would assist and not hinder them in providing suitable sites for the new stations required to meet the growing demand for ample and economic supplies of electricity.

Replying to questions, Sir John Hacking

said he did not regard it as practical to put underground a large number of generating stations in this country; the cost would be prohibitive, and a chimney would still be required to discharge the flue gases into the air at a suitable height to cause adequate dispersion.

District heating was a fashionable subject at the moment, and there were cases where it could be applied with advantage. There was an economic case for a combined station, supplying heat to works, and possibly houses, in the vicinity of the station where the distribution costs were relatively low. To supply heat to the type of housing common in this country was a more doubtful proposition, on account of distribution costs. The final proof could only come from carrying out actual commercial schemes, and the B.E.A. was prepared to co-operate in that matter.

The possibility of recovering by-products from coal by low temperature carbonization at electricity generating stations and using the coke and gas for the boilers of electricity generating stations was attractive, and had been tried out on a commercial scale 25 years ago on the Tyne, but its economic justification depended largely on the price of the by-products, which was under the control of others, so that it had not been successful from that point of view; but with the nationalization of the fuel industries a joint user of that kind might be worth investigating.

No action had been taken on the last report on the Severn Barrage scheme, because it did not seem economic at the prices of coal then ruling. The energy obtained depended entirely on the moon (through the tides), but the habits of man were based on the sun, and they did not coincide. The scheme would not save the installation of a single megawatt of other generating plant, but since then the price of coal had gone up. That might help, but so had the price of everything else.

To site stations at the pithead was not easy because of the quantities of water required, but two stations had been planned in association with the National Coal Board, and he hoped others might be built as time went on.

**Mr. Kenneth Campbell** [4] (Architects' Department, National Coal Board), said that the architect in nationalized industry was an animal which hardly existed, and the function of the architect in nationalized industry was something which was now being slowly and painfully brought to birth.

The basic function of the architect was to assess the basic pattern of any system of human activity and to impose from that pattern a developed pattern of his own upon that activity itself. That was the method by which science and all human activity proceeded—the imposition of a man-made pattern in order that some activity might be controlled. Without that pattern, any activity must be wasteful and frustrated. That applied equally to a small house and to a major industrial town. We had seen in this generation the way in which the lack of that pattern in our industrial towns had resulted in human frustration and misery, and also

in economic and financial loss on a scale which was hardly understood even now. Even today it was perhaps not fully understood how important the imposition of a planned pattern, a planned circulation, was for any building.

The work of the architect was very important from the point of view of economy, whether in terms of maintenance or insulation and the conservation of fuel and power and heat or the provision of light and amenity. The architect extended the principles of time and motion studies from machines to buildings and processes. The importance of time and motion studies was understood by industrialists as far as machines and men were concerned, but they were also important to buildings and undertakings as a whole.

The other functions of the architect were well known, even if not fully utilized. He had to organize and control the complex process of building, all the myriad specialists that went to the production of a major industrial undertaking. There must be a co-ordinator for this work, and the architect, from his nature and the nature of his work, must be the co-ordinator and responsible to the client. He had also to meet a vast number of legal and statutory requirements, which were far beyond what they were even 10 years ago. Today the architect was often valued not for his planning ability, but as the man who could find his way through the maze of licensing and statutory requirements and planning legislation. If, as a result of that introduction, he was eventually allowed to interfere with the planning of the building, there had been some gain from these new requirements.

The architect also had the function of safeguarding his client's financial as well as legal obligations, and of acting as an 'honest broker' between the building owner on the one hand and the contractor and all the other people employed by that owner on the other; he had to hold an objective view of what were the rights of both sides, because even the building contractor had rights, both moral and legal.

Lastly, the modern architect was really in the direct line of descent from the famous architects of the past. It was his responsibility to carry on the traditions and the development of architecture and design in this country, and to hand them on to future generations. What future generations did with them and thought about them was their affair.

To some extent the architect as the servant of the State was imposing planning from above; he appeared as the servant not of society as a whole, but of an organ which represented and was controlled by a very small section of society. For that reason, one would not expect the ordinary man to be very proud of the local labour exchange; it might be a good building, but he did not feel a great deal of responsibility for it.

The architect in nationalized industry—whether coal, transport, electricity or aviation—was in fact the servant of the community as a whole. It was true that he acted directly in contact with the directors of that nationalized industry, but they were them-

selves the servants of the community as a whole; they were there to manage the industry for the people, and they as well as the architects must be conscious of their responsibility to society as a whole, to the man in the street as well as to the man who was going to use the undertaking.

In exactly the same way as the directors of nationalized industry were responsible to the people for raising the coal, running the trains and generating electricity, they were responsible to the people for the physical, the architectural atmosphere, the shape and design of the buildings in which those activities were carried on. That was a responsibility for which one day the nationalized industries would be asked to account. At present they were asked to account only for the price of coal or the cost of transport, but they would one day be asked to account for their responsibility as trustees of the nation for the design and handling of their undertakings and for the kind of buildings in which they asked their workpeople to work.

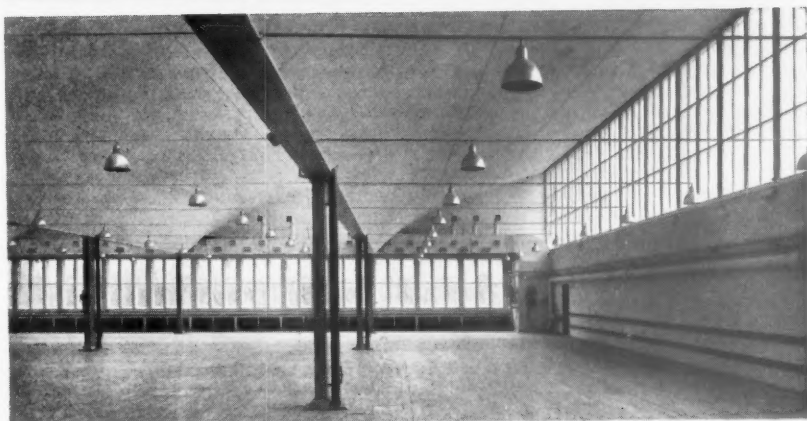
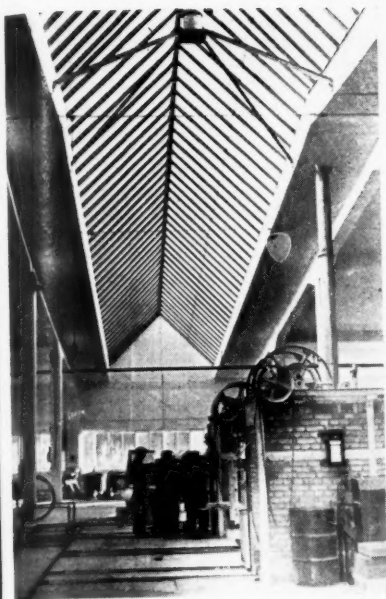
That responsibility, morally, always rested on the shoulders of industry, private or nationalized, but it rested with particular strength on the nationalized industries because they were of immense size and the effect of their development was going to be of the greatest possible importance in the future. With private enterprise, to a very large extent the interest and responsibility of the owners of an undertaking ended at the boundary of their site; but responsibility in design and planning did not end with the individual undertaking or the building, however well designed it might be.

Nationalized industry gave an opportunity for the co-ordination of design and planning and for bringing inside one scope the whole of development. Unless we grasped that responsibility very soon, and understood the need to cope with this planning on a wide basis, we should run into considerable trouble in the not distant future. Planning, in fact, was simply the intelligent anticipation of future needs. That was not possible for private enterprise on a wide scale, but it was essential for nationalized industry.

Physical planning was a particular art and also a particular science. It demanded precise training and precise discipline. So did engineering and the law; but it was the hall-mark of inefficient administration to appoint men trained in one discipline to undertake the task of another. Legal advisers were not asked to design machines. When developing undertakings of any size, it should be remembered that the architect, and with him the town planner, was the only man who was trained precisely in the science of physical planning.

In the last analysis, it was the community as a whole which trained, fed and housed the architect, together with all the other professional people. It would be ironical, therefore, if the community, having undertaken that task, did not reap the benefit in its own undertakings of that discipline which it had itself produced. There was an urgent need to see that these abilities and disciplines were used to their fullest extent. This was true also of the engineers, scientists





Top left: Co-operative porcelain factory at Gustavsberg, Sweden. Chief Architect: Professor Eskil Sundahl. Reinforced concrete roof decking and steeply-pitched glazing to shed snow. Top right: exterior and interior of a spinning mill at Arlesheim, Basle. Architects: Suter and Suter. Shell concrete north light. Below left: interior of Hoffman and La Roche factory, Basle. Architect: Dr. R. Rohm. Below right: garden at Oerlikon machine tool factory, Sweden. Architect: Gustav Amman, from the landscape section of the R.I.B.A. Exhibition

and others who came into nationalized industry, and their relationship was one of equal collaboration.

In 1926 the architect came on the scene, as part of the Miners' Welfare Commission, with the specific task of introducing some

form of amenity and welfare into the industry. The main avenue of his work was the pithead bath and its immediate surroundings. Up to 1940 the achievement was tremendous—365 separate installations, and all the ancillary work. What was impor-

tant was not so much the individual pithead bath, but the effect which it had on the industrial surroundings in which it was set; from it radiated new ideas about the value of design, space, light, colour and everything which went with good design. All

over the country there were to be found in those years little patches of a better kind of outlook on industrial development, and the colliery offices, the lamp cabin and the administrative section began to be brought into the picture. It was realized that a colliery could be surrounded by lawns and planting which could make it a pleasure to visit. Related to the pithead baths, therefore, one had amenity away from the pit, and extending to the miner's leisure hours, as in the community centre.

This work was carried out by a centralized architectural department, which provided the opportunity for building up a *corpus* of experience and of designing ability which went far beyond the individual abilities of the men concerned; the whole was much greater than the sum of the individual parts. That department created an enormous body of work, of which no one construction was outstanding, but the whole reached a certain level such as a team working in constant contact could produce.

With nationalization, the horizon of architecture in the industry spread beyond welfare to the whole structure and physical shape of the industry, and the architects who had worked for the Miners' Welfare Commission asked themselves how far the services of the architect would be used on this much greater job. The industry had to be reconstructed almost from scratch, and the Board was faced with the problem of whether to continue on the old lines or to make a radical change, whether to take up the challenge of the Miners' Welfare Commission or not. In the end, it decided in principle that there should be a single architectural service for the coal-mining industry.

Mr. Kenneth Campbell then showed a number of slides to illustrate present and projected development. One of these concerned the winding gear. Instead of the power required to raise the coal and men being at ground level and carried over a pulley-wheel for the vertical lift, the winding engine itself was in a tower 200 feet up in the air, and there was a direct pull. In some cases, connected with a new pit was the question of a new town, and this was where the nationalized industry made contact with the general economic development of the country. With the new methods coming into use, of electrical winding and so on, a new type of colliery was coming into being.

Whatever form the organization of the architectural services of a nationalized industry, or any other industry, might take, there would still be serious problems to solve. Just as nationalized industry had yet to solve the problem of combining public ownership with the necessary authority of the managing body, and both were essential, so in design it was necessary to solve the problem of expressing an undertaking which was the property of the people as a whole and which should express their aspirations and feelings, and at the same time retaining the initiative of the designer.

That was a problem which architects and architecture had hardly yet begun to face, but he felt that in nationalized industry it

might be possible to find the way to a solution. The problem extended beyond nationalized industry to architecture as a whole. It was part of the problem of the steady transfer of political power which marked our epoch. Up to 150 years ago, good design, fitness, and decency were accepted as the natural products of any human activity; the products of men's hands were almost always pleasant things to look at, and in their own way quite noble. Since then, industry as a whole had taught us to believe that money was essential, that 'Where there's muck there's money', so that our physical surroundings had become very largely muck-heaps. That could be remedied with time and effort, but a by-product of this mass of ugliness was that we had come to accept it as being natural, and from there to feel that design was something to be added to a utilitarian and rather regrettable base, although in fact a thing was not really utilitarian unless it was well designed.

Our task today was to change that outlook, so that it would become accepted by everybody that when a man made something he made it well, and it looked pleasant and was pleasant to use. Nationalized industry could, if it wished, play a big part in that change; on the other hand, it could, if it wished, set a precedent which might do incalculable harm, a precedent of not using the designer for the work for which he was born and trained.

## DISCUSSION

A questioner asked why Mr. Campbell differentiated between the labour exchange and the pithead bath. He himself, he pointed out, saw his labour exchange four times a day, but a coal mine possibly only once a year. Mr. Kenneth Campbell emphasized in reply that he did not mean to treat the labour exchange as being of no importance, but he felt that there was a difference of response towards a nationalized industry, which people might feel to be theirs, while they regarded the labour exchange as something handed down from above.

Another question was what the leaders of nationalized industry now regarded as the correct dividing line between the functions of the engineer and those of the architect. To this, Lord Citrine replied that he could not speak for the conceptions of nationalized industry, as such, but he could speak for the electricity supply industry, and their point of view was that it was impossible to draw any hard and fast line between the two—or perhaps one should say the three, because there was the civil engineer to be considered. What was important was to get the architect, the mechanical or electrical engineer, and the civil engineer working together on the concept from the beginning. The practice of bringing in the architect at a late stage, when the rest of the project had already been determined, was not good.

The chairman (Lord Citrine) said he had found the session most interesting. Mr. Campbell had been provocative and had emphasized that nationalized industry and its development was raising a very serious problem for the architectural profession. What was to be the relation of the architect

to this vast economic development? No one at the moment could give an answer.

'You are concerned primarily', the chairman continued, 'with the question of how to produce the best buildings, best in every sense, of which you and the community can feel proud, and in which your creative impulse can find expression. We have to evolve, whatever the form of ownership and control may be, a rather higher conception than we have today. I am sure that your Institute has been struggling for this conception for many years.'

'What we tend to lose sight of is that it is always easier in retrospect to see mistakes. When faced with a problem in particular circumstances, decisions may have to be taken which have no relationship to ultimate considerations such as architectural beauty or suitability for a subsequent age. Moreover, every generation, presumably, has some different, developed conception, superior, we hope, to that of its predecessors. I cannot imagine that the architecture of Ancient Greece would commend itself to you today, beautiful as it was and admired as it has been down the ages. Architecture, surely, is the expression of the conception of a generation. It must be a changing conception, and I hope a broadening conception all the time.'

'Now nationalization is here, and I believe that it is going to extend, not only in this but in other countries. Precisely how the community is to control it is a political problem into which we need not go; but, if it is going to be an important factor in our lives, the sooner your profession think out your relationship to that changed condition the better for architecture in general.'

## SESSION III

*This session was devoted to technical discussions, the membership of the Conference sub-dividing into groups. The subjects and speakers were: Structural Techniques; W. S. Atkins, B.Sc., A.M.I.C.E., and Edward D. Mills [F], Heating and Ventilating; Thomas Bedford, D.Sc., Ph.D., M.I.Min.E., L. Copeland Watts, M.I.Mech.E., A.C.G.I., M.I.H.V.E., and A. G. Sutton, M.A., Natural and Artificial Lighting; W. A. Allen, B.Arch. [A], and R. O. Ackerley, F.I.E.S., Various Factors affecting Working Conditions; H. G. Maule, M.A., and Dr. N. Davis, M.A. Reports from the Technical Groups were made at Session IV, which was a full meeting of the Conference. A full report of this last Session, which included a general discussion on all the matters raised in the Conference, will be published in the May JOURNAL. Those technical papers which are of special interest to architects will be published as illustrated articles in subsequent numbers of the JOURNAL. A full report of the Conference, substantially that printed in this and the next numbers of the JOURNAL, is also being bound into a second edition of the Exhibition Handbook to be circulated to industrialist members of the Conference and to other industrialists who are interested. Copies of this expanded edition of the Handbook will be obtainable after 1 May from the R.I.B.A. at 2s. 6d. post free.*

# Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialized branches of research and will willingly answer inquiries.

The Director, The Building Research Station, Garston, near Watford, Herts.

Telephone: Garston 2246.

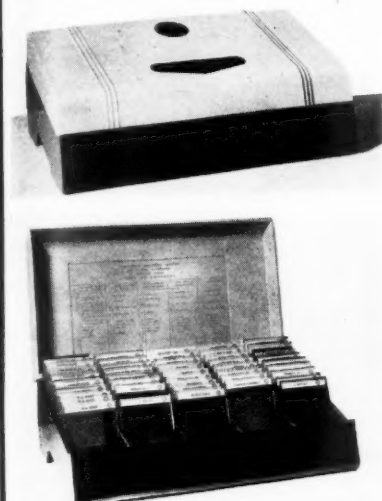
The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks.

Telephone: Princes Risborough 101.

The Director, The British Standards Institution, 28 Victoria Street, Westminster, S.W.1.

Telephone: Abbey 3333.

The Deputy Director, The Building Centre, 9 Conduit Street, W.1. Telephone: Mayfair 8641-46.



The Pilkington Sample Box

**A Box for Samples.** Too few building industry suppliers realize the extent to which the architect is influenced by good design. He is automatically attracted by a catalogue of which the layout and typography are well designed, quite irrespective of the cost of its production. He is repelled by an ugly one, even if the catalogue is printed on art paper and the binding is expensive. Messrs. Pilkington Brothers Ltd., the glass makers, clearly realized this when they set out to create a new box to contain samples of the glasses they manufacture. Not only did they appoint a design committee to study in detail the functions of the box, but they consulted an architect, Mr. Derek Bridgewater [F]. The design went through eight stages, arriving finally at the moulded plastic case which is illustrated here. The requirements stated by the design committee are perhaps worth recording. They were: each sample to be separate; the samples to be grouped; the samples to be capable of being withdrawn and replaced easily; any sample to be easily located at a glance; when replaced, samples should not foul the lid of the box; a contents slip to be incorporated; provision made for new samples. A refinement in the production model is the undercutting of the ends to take fingers so that there is less likelihood of the box being dropped—a point of some importance with samples of glass.

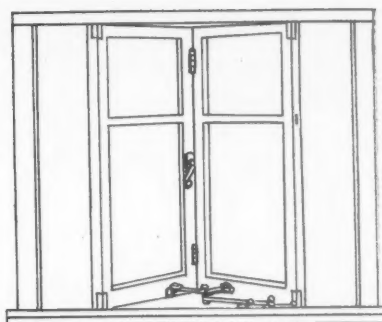
**Friction Hinge.** Messrs. Henry Hope are now fitting their standard windows with a new pattern of friction hinge designed to hold the casement open at any desired angle and to allow easy cleaning. The hinge consists of two leaves, of 8 and 10 gauge steel, hot-dip galvanized and welded to the frame. The inner leaf holds the hinge-pin, and the outer has two flat knuckles which squeeze the inner leaf between them. Stainless steel washers are interposed to reduce wear. The head and nut of the pin bear on the outer leaf, which does not move, and so there is no tendency for the nut to work loose. It is an advantage not to have a stay, but a stay did prevent the casement swinging open and shut in a high wind. However, Messrs. Hope point out that if a friction-hinged casement is left open and a gale springs up, the casement will not slam but will move in a series of short gentle steps. Demonstration confirmed this.

**The Rowhill Window.** This is a wood double casement window that does away with the usual central mullion. The two casements are hinged together and open with a scissors movement so that they can be pushed to either side, or be put into the position shown in the illustration on this page. At each of the corners of the outer stiles there is a roller running in a metal track; the lower one is housed in the sill and taken into the frame and then bent round to discharge any collected water over the sill. The outer edge of the track projects a little above the sill to prevent a burglar slipping a knife under the casement.

When the casements are opened to their fullest extent the clear opening is 9 in. wide on each side, so that there is ample space for cleaning purposes and there is little danger of a child falling out. The casement can also be made with double glazing.

The window can be made with side fixed lights, to give a three or four light window. The sizes of the members are: head, 3 in.  $\times$  2 in., with 2 in.  $\times$  1 in. drip; sill, 3 in.  $\times$  2 in. with 2 in.  $\times$  1 in. sub-sill; mullions, 3 in.  $\times$  2 in.; top rail and stiles, 1 1/2 in.  $\times$  1 1/2 in.; bottom rail, 3 in.  $\times$  1 1/2 in.; glazing bar, 1 1/2 in.  $\times$  1 in. The over-all heights are 3 ft. 6 in., 4 ft., and 4 ft. 6 in.; and the lengths are 4 ft. 1 in. for the two light type; 5 ft. 11 1/2 in. for the three light, and 7 ft. 10 in. for the four light. The timber content is slightly less than that of the ordinary casements.

The casements are made and marketed by Messrs. Cygnet Joinery Ltd., whose London office is 20 Danvers Street, Chelsea,



The Rowhill Window

S.W.3. A specimen will shortly be on exhibition at the Building Centre.

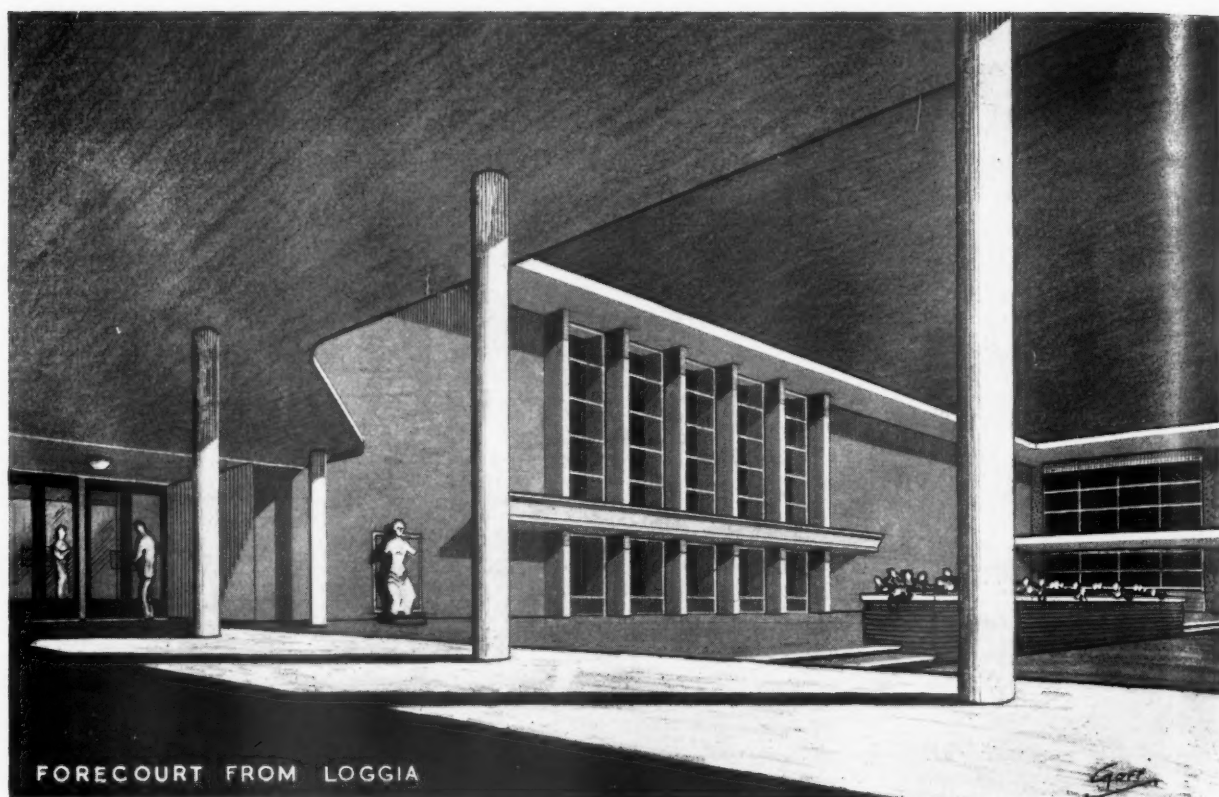
**H.T.J. Key List.** There are now many types of solid fuel burning appliances on the market, some with names which do not indicate the style of the firm making them, and it often takes quite a time to ferret out the information. THE HARDWARE TRADE JOURNAL is therefore to be thanked for producing the H.T.J. Key list booklet of solid fuel burning appliances; this gives first an alphabetical list of firms with their addresses, and each is given a number. Then follows another alphabetical list of the appliances by their names, and each is prefaced with the number given to the manufacturer in the first list. There are over 300 names of firms and 1,500 trade names and marks.

The booklet then gives articles on heating systems for small houses, open fires, openable stoves, independent domestic boilers, free-standing cookers, combination grates, operation and maintenance, and the cost of heating small houses; illustrated with drawings and photographs. The Coal Utilization Joint Council have made themselves responsible for these articles. The price of the booklet is 2s. 6d., post free, and it may be obtained from THE HARDWARE TRADE JOURNAL, Bouverie House, 154-160 Fleet Street, London, E.C.4.

**The House Longhorn Beetle.** The D.S.I.R. observe that reports have been published of damage done by the house longhorn beetle—*hylotrupes bajulus*. The records of the F.P.R.L. do not indicate widespread occurrence of this beetle in Britain, but there have been a number of instances of damage done by it in parts of Surrey, during the last few years. In North Germany, Denmark and Sweden, however, it has been responsible for much damage to the sapwood of structural woodwork in houses, and attack has also been observed recently in South Africa. Infestation seems to occur mostly in roof timbers, where it can do much damage in timber containing a good deal of sapwood. A leaflet describing the beetle and the damage it does may be obtained free of charge from the F.P.R.L., Princes Risborough, Bucks.

**Correction.** It is regretted that in the March issue of the JOURNAL the price of B.S. 1455: 1948, 'British-made plywood for building and general purposes', was given as 3d. instead of 3s.





FORECOURT FROM LOGGIA

Perspective detail of a typical College for Further Education. See plans opposite

## Northamptonshire County Council School . Programme: Buildings for Further Education County Architect: A. N. Harris [F]

IN ACCORDANCE WITH Ministry of Education Circular No. 133, the Northamptonshire County Council have prepared a Scheme for Further Education, to which are attached three designs for the necessary new buildings. These designs are not specific examples for any site or locality, but are preliminary essays for the newer types of educational buildings which are demanded for the work of further education envisaged by the 1944 Education Act.

The industries of Northamptonshire are fairly well served with technical institutes. The main industry is boot and shoe manufacture, which employs double the number of persons employed by the next two largest industries, namely, iron and steel and agriculture, closely followed by engineering; next in size are the distributive trades and clothing. These industries are in fairly well defined areas. The County Council's policy for these areas, so far as building is concerned, is chiefly one of expansion of existing facilities.

Where there is no technical institute and

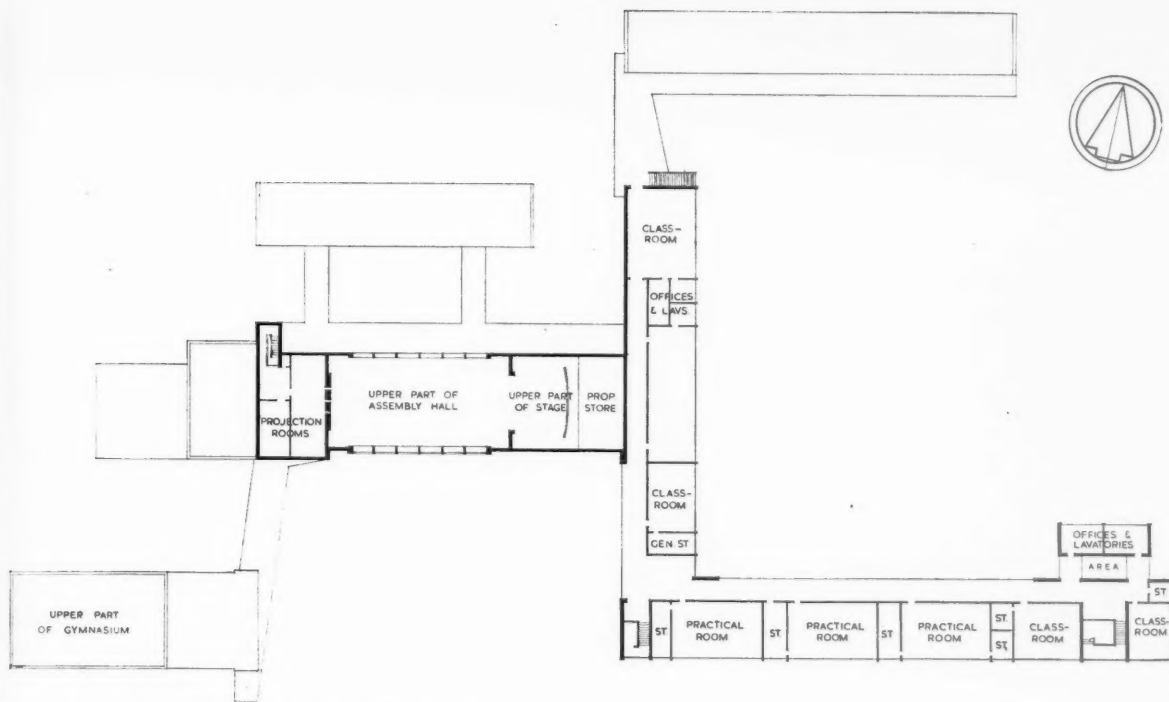
a county college should be provided, it is proposed to contain the county college in a College for Further Education, which will provide educational facilities not only for young people but for adults also. Plans of a typical College for Further Education are given on the opposite page. The building consists essentially of an L-shaped two-storey central block with the hall and dining-room forming a principal wing and the gymnasium and practical rooms forming secondary wings.

Where a modern school is proposed, a wing will be annexed to the modern school specially equipped for adult work. These buildings are to be known as District Colleges (see plan on page 274).

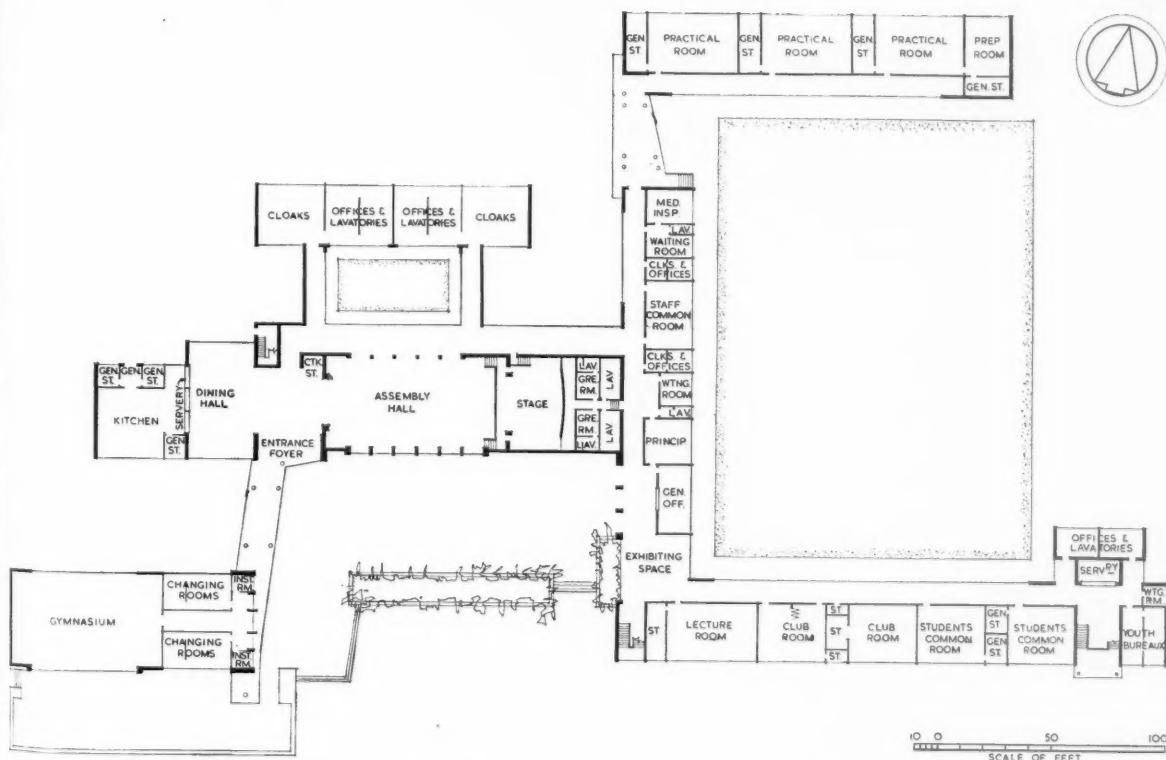
In the past evening institute work in rural areas has been handicapped by lack of suitable premises, particularly for practical subjects. Courses which require special technical equipment will still be available only at the technical institutes, but the workshops and practical rooms of the college or modern school should do much to extend

the curricula of the evening institutes. For the first time there will be provided in the rural areas permanent buildings specially designed for further education, with staff specially appointed.

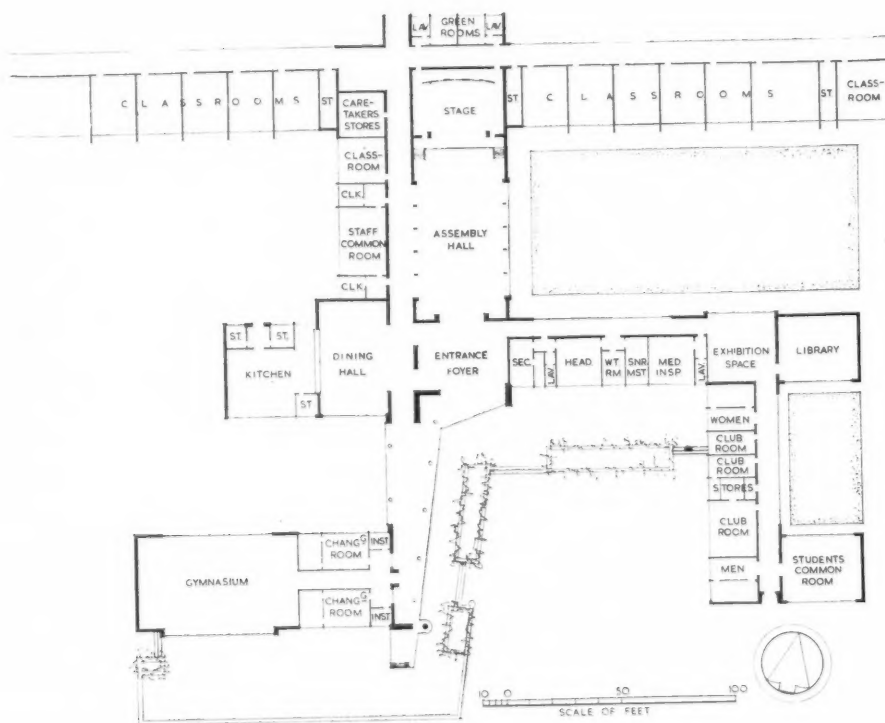
The colleges will provide for the fifteen to eighteen years age group and there is here some conflict with the County Council's development plan for secondary education, which provides for the education of children up to 16 years of age. The numbers have had to be calculated with great care, account being taken of birth rate trends as well as of population distribution. The county has been divided into catchment areas, resulting in twenty-one modern school areas and eight county college areas. Transport has also been carefully studied. Existing facilities will serve the majority of county college students, but it is recognized that special arrangements will have to be made for those living in remote villages. The methods proposed vary; some will have their own means of transport; where numbers justify, bus or car services will be extended; in some



Typical College for Further Education: first floor plan



Typical College for Further Education: ground floor plan





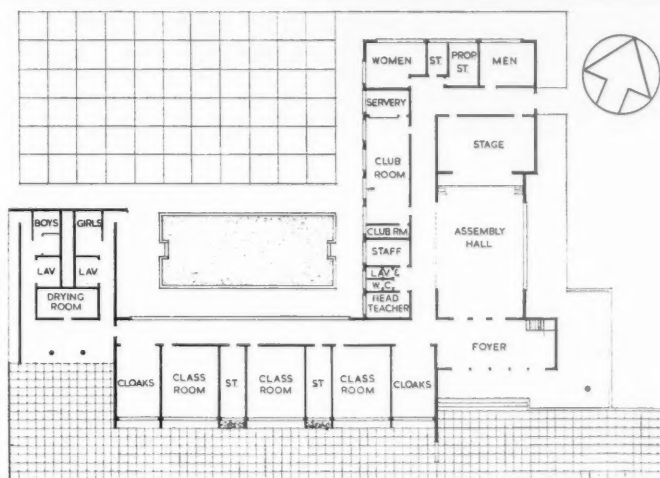


Perspective and plan of typical Infant and Junior School and Village Hall

cases bicycles or motor-cycles will be provided on a loan system. Generally speaking, the travel distances for students to the county colleges will be under twelve miles; only in a few cases will students have to travel more than this distance, the maximum being 15½ miles.

The number of building firms in the county who can undertake large building operations is limited, and in view of other demands on the building industry and the improbability of obtaining contractors from other counties it is anticipated that not more than two county colleges can be built each year. It is hoped to have six colleges ready to receive students by September 1953. Nevertheless, the County Council doubt whether building resources will permit the carrying out fully of the primary and secondary education plan as well as the scheme for further education, and they consider that the provision of modern schools is more urgent educationally than the county colleges.

A third feature of the programme is concerned with the problem of the rural village. It is accepted that many of these are too small to make a satisfactory social unit and must be grouped. Such a grouped unit should have not less than 1,000 inhabitants as a minimum, and better 1,200 to 1,500. It is intended that the rural school, serving several villages, with its hall, canteen, radio and film projectors and its hall platform for dramatic work, will serve both as school



and social centre, with the addition of certain accommodation set aside for the exclusive use of adults. It is recognized that some villages have or may wish to have their own village halls. In some of these cases an existing school which is down for closure may, with adaptations, suit the purpose of a community centre. This applies particularly to the smaller villages which are not large enough to justify even a primary school on modern standards.

The perspective and plan on this page illustrate a typical building unit combining an infant and junior school and a village hall. A point to be noted in the interior design of these buildings is the County Council's intention 'to make the rooms as little like classrooms as possible.' They are to be designed at the outset so as to be usable by adults as well as young people, pleasantly decorated and furnished with tables and chairs instead of desks.

# The Protection of Metals Against Corrosion

By T. P. Hoar, M.A., Ph.D., B.Sc., F.R.I.C., F.I.M.

Read at a Meeting of the R.I.B.A. Architectural Science Board on 22 March 1949. J. L. Martin [F] in the Chair

IT IS WITH some general considerations of corrosion that I want to begin this lecture so that we can then turn to the possible architectural applications.

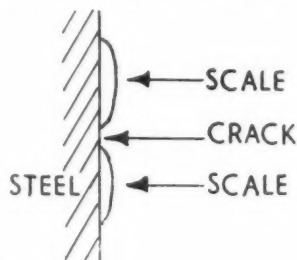
Corrosion is the reaction of a metal with its environment to give a compound of some kind. The compound can be soluble, as when zinc dissolves in sulphuric acid and gives zinc sulphate, or insoluble, as when iron rusts in a moist, polluted atmosphere, giving a compound usually called rust, and the formula of which may be taken as  $\text{FeO(OH)}$ . Normally, we are concerned in corrosion studies and in the protection of metals with this form of attack, in which the product of corrosion is an insoluble body.

When we have the attack on iron or steel by either a liquid, such as water containing sodium chloride, or other salts, or an atmosphere containing water vapour, carbon dioxide, sulphur dioxide and so forth, and rust is produced, everything depends upon whether that rust is a loose, flocculent material or whether it is adherent to the surface. If it is loose and flocculent and can fall away, the metal surface is still exposed to further attack; but if the rust is fairly adherent and forms a good, stiff film on the surface, it may well be partially protective, so that corrosion, having started at a fairly high rate, slows down. This is one of the cardinal principles in the corrosion and protection of metals which we meet again and again—protection by a product of corrosion in certain cases and not in others.

Another important principle that we have always to consider is the actual electrochemical activity of the metal concerned. The so-called 'noble' metals—gold, platinum, to a less extent silver, and to a still less extent copper—are in general much less easily corrodible than the so-called 'base' metals—iron, zinc, aluminium, magnesium and so forth. There is a certain inherent corrodibility in a metal, and a metal can be taken in a rather broad way to be either 'noble' or 'base.' In the protection of metals, it is, of course, the base metals that we have mostly to consider. Metals such as gold and silver are thermodynamically unreactive, and do not depend for their inertness on any protective film or deposit; we are thus concerned not with their protection but only with their use as protective layers on other metals more subject to corrosion.

I come now to a third principle. When we have two metals coupled together, such as copper and iron, one of which is fairly noble and the other fairly base, they can act, if they are both exposed to the same electrolyte, as the two poles of a galvanic cell, and produce current. A familiar ex-

ample is the Daniell cell, with copper dipping into copper sulphate and zinc into zinc sulphate, and the 'dry' battery, with an inert carbon electrode to which atmospheric oxygen has access (this is a 'noble' electrode) in contact with an electrolyte that is also in contact with a zinc electrode. In both cases the less noble zinc dissolves and current passes between the two poles of the cell. When similar couples occur 'by accident' in practice the result is that the base metal may be severely attacked, much more than if it were uncoupled, whereas the noble metal tends to be protected. This



Steel with Oxide Scale

principle is of great importance in bi-metallic systems and in cases of metals coated with other metals, such as one often finds.

These, then, are the three principles that I want to bring out first of all: the protection of a metal by its own corrosion products, the fact that some metals are inherently easily corrodible and others not, and that when we have an easily corrodible metal in contact with one which is less corrodible, the less-corrodible metal tends to increase the corrosion of the base one and to receive some protection itself.

Let us turn now to some cases of interest in architectural practice. The most obvious and most important case is that of structural steel. Structural steel as it comes from the steelworks is normally coated with rolling mill scale, which is reasonably thick but which is not really very protective, because it is never really complete. A piece of steel coming from the mill has oxide scale on it in the way shown in the accompanying illustration; here and there at a crack the bare metal is exposed, and our third principle applies. If a raindrop containing carbon dioxide and sulphur dioxide, and in seaside districts sodium chloride, falls on the crack, it provides electrolyte for the cell,

Oxygen on Iron Oxide | Electrolyte | Iron Metal  
in which the oxide electrode is noble with respect to the iron. Current passes and iron dissolves to a soluble ferrous salt at the



Zinc-sprayed links, Menai Bridge

anode, so giving rise to a pit, and on the outside oxygen from the air comes in and is electro-chemically reduced to hydroxyl ions. The ferrous ions diffusing out from the crack make a precipitate of ferrous hydroxide with the hydroxyl ions and this reacts with further oxygen to give rise to brown rust.

Structural steel, therefore, should not be used in the scale-covered condition. Normally, as you all know, it is weathered by standing in the atmosphere for any period from three to nine months, and after that is wire-brushed to get rid of most of the rust formed, and most of the scale, undermined by the action that I have described. Then the steel is painted. Weathering is not a good way of preparing a surface. A steel surface, properly prepared for painting or for any other form of protection, should be really chemically clean; it should possess no scale or rust at all, because that rust and scale continue to act cathodically and stimulate any corrosion that starts.

The best ways of preparing a steel surface are undoubtedly acid pickling and shot-blasting. Unfortunately, both methods have practical limitations. Pickling should and could be done in the steelworks, and it is for engineers and architects to persuade the steelmakers to produce pickled stock, coated in the steelworks itself with a priming coat of red lead paint; no steelworks has yet performed these operations on anything like a large scale, though there are large numbers of steelworks where space is set aside for the weathering process out of doors. The ideal pickling procedure is (a) treatment in sulphuric acid to remove the whole of the scale, (b) thorough rinsing, (c) treatment in warm phosphoric acid, (d) drying off without rinsing to form a slightly protective coating of iron phosphate that is an excellent basis for paint, which is (ideally) applied while the steel is still warm. This superior method of preparing steel is occasionally done for special purposes by the user rather than by the steel producer.

The other very effective way of preparing structural steel is shot-blasting. This is merely the application of cast iron grit to the surface by means of a powerful blast of air. This produces a clean, roughened surface that is very excellent for painting or other treatment.

Let us pass on to methods of protection of the cleaned surface, and consider first paints. The first coating on structural steel should normally be what is called an

'inhibitive' coating; that is to say, chemically protective as well as excluding moisture and air. For this purpose, nothing has been found superior to paints pigmented, at any rate in part, with red lead. The mechanism of the inhibition of corrosion provided by red lead paints on steel is still not entirely clear. The most recent theory is that the red lead produces, with the vehicle of the paint, lead salts, depending on the organic acids present in the oil vehicle, and that these act by absorption on the steel surface, rendering it less prone towards reaction.

The next coat will normally be an undercoat, and will be followed by a top coat. Both should be weather-excluding, the more water-tight the better. In point of fact, no paint film is completely water-tight; water diffuses through all paint to some extent. The most resistant outside paint films usually contain iron oxide as the pigment; very often micaceous iron ore is advocated, the small mica particles having a kind of leafing effect in the paint and helping to exclude moisture better. Aluminium paints are also used with great success as water-excluders, flake aluminium powder being used as the pigment. The vehicle is also important, and modern paints containing a considerable amount of synthetic resin in the vehicle are undoubtedly superior as outside paints and top coats to the older straight linseed oil paints.

I mentioned phosphate undercoats in connection with phosphoric acid pickling. Superior phosphate coatings can be produced on an iron surface by solutions of suitable acid metallic phosphates, e.g. those of zinc and manganese, rather than phosphoric acid itself. These processes give a good foundation for any paint, because the phosphate coating allows the paint to run into its pores, which gives good adhesion.

Several other undercoats for paint have been advocated, and they all have their uses. A very thin coating of tin, for example, such as is produced by one of the proprietary pickling processes for steel, which leaves a very thin coating of tin on the surface, has been described as an excellent undercoat for paint. Other undercoats to which I shall refer in more detail later are zinc and aluminium, applied by spraying.

Before leaving what I would call the classical methods of protecting steel I ought to mention vitreous enamelling, which is used a great deal more than one may be inclined to think at first sight for the protection of iron and steel. It provides, of course, perfect protection for a number of years against very severe conditions, with the exception of mechanical shock. If it was not for such mechanical break-down of the glassy layer of vitreous enamel this method would solve most of the problems of protecting structural steel exposed to the atmosphere; but, unfortunately, as soon as mechanically produced cracks occur, rust proceeds at the crack, and leads to spalling and flaking. Vitreous enamel, however, has its place, and we must not forget

that it is chemically the best method of protecting steel.

Metal spraying is an interesting and effective method of protection. Zinc and aluminium can be sprayed by three methods, all of which depend on the same principle; the metal is obtained by one means or another as a fine particle in a gas in a flame in a so-called pistol or spray gun, and is thrown on to the surface that is to be protected. The fine particles can be obtained either by melting a wire of the metal in the pistol itself by the heat of the flame, and blowing a jet across the tip of the wire, to atomize it, or by providing molten metal from a container on the top of the pistol, or by sucking a fine metal powder into the flame of the pistol by means of ordinary aerodynamic effects. The three methods of metal spraying are all used extensively in this country, and each of them has its particular points. Before spraying can be used the articles have to be shot-blasted to get a really clean surface; preferably they should be shot-blasted almost immediately before spraying is applied.

The Menai Bridge was reconstructed at the beginning of the war, and all the chain links were sprayed with zinc by the powder process on the site, in sheds specially erected for the operation. That was done in the beginning of the war, and the links then received two coats of paint. They are still (1949) in perfect condition, whereas the parts of the structure that were not zinc-sprayed have had to be repainted on more than one occasion. This is a good example on a rather large scale—from civil engineering rather than architecture—of the value of zinc as an undercoat to paint.

Aluminium, although the sprayed coating is in general less effective than that of zinc for atmospheric use, gives good protection against high temperature scaling; this may have architectural application in connection with exhaust fans, ducting, and also certain types of chimneys, stacks and so on carrying hot gases.

Experiments have been made recently, especially in America, with oil-sprayed coatings. Sprayed coatings of any metal tend to be porous; and, though that is scarcely a disadvantage in the case of zinc (because the coating is the anode and the underlying metal the cathode, so that the underlying metal is protected at any spots exposed by pores in the coating), in some cases it is a disadvantage. With the addition of oil the porous nature of the coating is utilized to advantage in providing a basis for an otherwise poorly adherent protective.

I should like to say a word or two about steel in reinforced concrete. The steel used is usually in a very rusty condition before the concrete is put on, because the concrete is thought to be sufficiently alkaline to prevent any further attack. Furthermore, oxygen, which is absolutely essential to the corrosion reaction, is more or less excluded by the concrete, which is not very porous to air. Nevertheless, I do not think that we can rule out the possibility of severe corrosion of steel embedded in reinforced concrete in certain conditions, because, even

though the attack may not be general, the conditions may be right for pitting—that is to say, rapid attack at one or two points, that might in severe cases completely penetrate and severely weaken the steel. I do not think that we need be unduly alarmist about it, but I should welcome comments afterwards from anybody who knows more about it than I do.

Now let us turn to one or two other matters of architectural interest, and consider first chimneys and smoke-stacks. The inside of metal stacks presents, of course, a very great problem, because instead of dealing with cool air—air which may be polluted, but is at any rate cool—we are dealing with exhaust gases, sulphurous fumes and all sorts of very unpleasant material at an enhanced temperature. We also have conditions for condensation near the top of the stack; and when shut-downs occur moisture trickles down and collects sulphur dioxide and other corrosive gases on the way. Attempts have been made by sprayed zinc and sprayed aluminium, and also by the use of certain classes of high-temperature paints, to alleviate the problem but it cannot be said to have been solved. The best thing that can be done is to attempt to avoid the particularly corrosive conditions; that is, to avoid condensation wherever possible.

Let us turn to something where more success has been obtained—roofing. The metals used in the roofing of buildings are, of course, substantially speaking, lead, galvanized iron, copper, and to some extent, zinc. It is interesting to see why those metals are successful and whether they need any further protection. Lead has always, of course, been used in the past without any protection. It owes its relative immunity in use as roofing material to the formation on its surface of insoluble lead compounds, particularly lead sulphate and lead carbonate, from the sulphur dioxide and carbon dioxide in the atmosphere. That is why a lead roof quite rapidly in some atmospheres becomes white in appearance, from the white lead sulphate and carbonate formed. These corrosion products are relatively protective; they are not hygroscopic; they are compact and adherent, especially that part of the layer in immediate contact with the metal, so that lead does not require any artificial protection.

In the case of galvanized iron we have a more complicated situation, zinc on top of mild steel. I have already mentioned in connection with zinc spraying that the zinc can protect the steel electrochemically at any cracks or holes in the coating. At such cracks or holes little cells are set up, but the zinc is the anode and protects the iron, and no rust occurs. Finally the galvanized iron becomes covered with a whitish layer of zinc corrosion product. Zinc does not corrode very rapidly in ordinary atmospheres, and a relatively thin coating may last for a number of years. In general, the time for which zinc coatings will protect steel depends almost entirely on the thickness of the zinc coating and not on the method by which it is applied, so that a



sprayed coating 0.003 inch thick will last still longer than a galvanized coating, for this is rarely as thick.

Copper is another interesting roofing material. After a period of years it acquires the pleasant green coating known as patina, which is highly prized by some as a colour effect for the roof, and which has been often aimed at in architectural practice. The patina on copper is chemically and physically similar to the material that forms on lead; it contains largely basic copper sulphate and some basic copper carbonate. It can be produced artificially by treating copper with solutions of various ammonium salts such as the sulphate and carbonate; by swabbing them on to copper it is possible to produce in minutes or hours an artificial patina, but this is less protective than the 'natural' patina produced slowly.

We can thus see the essential difference between the atmospheric corrosion of copper and lead and zinc on the one hand and that of iron on the other. Copper, lead and zinc all form relatively protective corrosion products on the surface, and with copper and perhaps lead the corrosion product is also of aesthetic merit. Iron and steel form rust that is so hygroscopic and 'fluffy' that it does not protect at all well; the moisture and oxygen of the atmosphere get through, and corrosion proceeds apace. Furthermore, by common consent rust is a very unsightly corrosion product, largely because of its colour and the way in which it flakes off.

Lead has also been used to a large extent for damp-courses, and many of you will know that damp-courses made of lead are not altogether satisfactory in mortar that has not dried out. At the Building Research Station twelve or fifteen years ago it was shown that lead in contact with mortar containing free lime is very considerably attacked. The carbon dioxide of the atmosphere, which might have been expected to be protective towards lead, is instead removed by the lime in its setting to calcium carbonate, and the well-known alkaline attack of lead proceeds as long as any free lime remains. However, a bituminous or bituminous felt coating between the lead and the mortar provides protection until the mortar has finally set to calcium carbonate, which is innocuous. This matter again reminds us that a metal, although buried in solid, should not be forgotten from the point of view of possible corrosion.

Let us pass on now to plumbing. Plumbing, of course, originally referred to lead pipes, and they have been and still are used to a very great extent, being very satisfactory with hard water; but they are much less satisfactory with soft water, and particularly with water containing humic acids from peaty catchment areas. Lead under such conditions corrodes readily and can give serious trouble with lead poisoning from taps connected to lead pipes carrying soft and particularly peaty waters. The reason for this varied behaviour of lead is plain when we consider the corrosion products. Provided that a coating of basic lead carbonate forms on the surface of the

lead, corrosion stops, and the small amount of product remains *in situ* on the surface and does not contaminate the water. This happens in a hard water containing calcium bicarbonate; we get a deposit on the surface of lead and calcium carbonates which is protective. If, however, we have a soft water, and particularly one containing organic acids, the lead can suffer continued attack giving soluble or colloidal products, and these lead compounds are carried by the water and can give rise to serious poisoning.

Iron pipes and mild steel pipes do not suffer from the disadvantage of giving rise to poisonous corrosion products, but, in exactly the same way as lead, if iron is exposed to soft water considerable corrosion to a soft kind of rust occurs. If iron is exposed to a hard water a deposit on the surface of chalky rust, which is protective rather than otherwise, is formed, so that in districts with hard water iron pipes are very satisfactory, whereas in districts with soft water they give rise very often to the complaint called 'red water.' This is rusty water coming from the tap, because there is such considerable corrosion, and every now and again nodules of rust in the pipes are stirred up by the passage of the water and give this rather unpleasant effect when they come from the tap.

The problem of the treatment of water to render it non-corrosive is a big one, and it would take us far too long to go any further into it. However, we should remember that, in general, in a soft water district the corrosion problems are greater than in a hard water district; indeed, in some districts where the natural water is now softened at the works, problems have arisen that were not there before water softening was installed. Unfortunately there is no very practical way of protecting the insides of pipes, so we have to treat the water rather than attempt to treat the inside of the pipes. A promising treatment for soft corrosive water in considerable use in America though it does not seem to be very popular in this country, is the addition of traces of sodium silicate. The effect of this is to produce lead or iron silicates on the metal surface and to give considerable protection.

A certain degree of corrosion can be tolerated in many plumbing systems. I have in mind the familiar cistern used in every household, and there, if you look inside the cast iron tank, as you will when the ball-cock gets jammed, you will find a mass of rust that really does not matter. What does matter very much, however, is the fact that most cisterns are composed of several different metals. I had a case in my own house not long ago of an ordinary cast iron cistern with a ball-cock made of a copper ball soldered on to an iron or mild steel rod. For twenty-five years or so the copper had acted as cathode towards the iron and steel and had given rise to a lot of rust, but, much more important, it had also acted as cathode towards the solder by which it was attached to the steel rod. Thus the solder corroded over a long period, and one night the ball fell off and my downstairs lobby

was awash in the morning. That is a simple case I could have prevented had I known about it by electroplating the copper, solder and rod with some metal—for instance, lead—which would have protected the whole system and prevented this cathode-anode galvanic action between the copper and the solder. I notice that the modern replacement which has been put in has a screw connection and does not rely on solder for the joint, which is a good thing. This is a little domestic instance of what must occur everywhere; and it brings out the effect of galvanic action.

We may go on to consider hot water systems, which have many problems of their own. Normally we have a galvanized iron tank and steel piping running to it. The pipes running away from the galvanized iron tank to the taps are, at any rate in modern practice, usually small diameter copper, to conserve heat. That is in order, but one will often find a plumber using copper pipes on the *input* side of the system, and that is bad. There is bound to be a very small corrosion of copper by the water, and any dissolved copper that gets into the steel, or particularly into the galvanized parts of the system, is deposited on the surface of the steel or zinc, just as when one dips a penknife into copper sulphate it gets a deposit of copper. This fine deposit of copper over the entire surface of steel or zinc is very effective in assisting the corrosion of these metals. Many failures of domestic systems through the corrosion of the zinc, and finally of the steel, have occurred because they have been contaminated with copper from input pipes. Brass pipes, taps, etc., on the input side are equally undesirable.

We now come to architectural fittings—all sorts of things such as taps, bathroom towel rails, window frames, letter boxes, door knobs and so on. A variety of possibilities opens up here. For taps and bathroom fittings generally, chrome plating has become very popular—electro-deposited chromium, usually on top of electro-deposited nickel, on a basis of brass. That is very good up to a point, but we find considerable attack after a time on the nickel, because the chromium is porous. Also, chrome plate has a bluish tint, not aesthetically satisfying to some.

A new electro-plating that is becoming established is white bronze (speculum metal), a 60/40 alloy of copper and tin that is white in colour, but more like silver than chromium. It forms a good alternative for chromium plate, having an agreeable colour and, as far as is known at present, giving about the same degree of protection.

When we come to things, such as window frames, that have to stand the outside atmosphere, we find that zinc spraying underneath paint is very good. Aluminium spraying has also been tried, but zinc is probably the better for this particular application. Other types of fittings which are partially outdoors, such as letter boxes could quite effectively be zinc sprayed and finally either painted or enamelled. Very often letter boxes are some sort of steel pressing, chrome plated, and they eventu-

ally corrode, giving an unpleasant appearance of rust spots. This may also often be seen in shop window frames. Constant cleaning is a partial remedy.

Gas stoves and baths are in the field of vitreous enamelling. Here we have massive material, very often cast iron or rather thick steel, which is not subjected to any severe mechanical stress, and thus vitreous enamelling comes into its own, with its hard, very corrosion-resistant coating. That is the right thing for gas stoves and baths, and there is very little more to do about it, except that we might bear in mind stainless steel. Stainless steel is a very good material from the corrosion point of view in the house, because it will last substantially for ever; but unfortunately it is expensive and somewhat difficult to fabricate. Thus, although such articles as sinks, large hot-plates, and ovens for restaurant kitchens are frequently made in stainless steel nowadays, I do not think that economically the day has come when small domestic appliances of the same kind will generally be made of stainless steel, although undoubtedly from the technical point of view stainless steel is very nearly the ideal material for such things.

I should like to say a word about the corrosive type of atmosphere that you can get in a house. In a kitchen or pantry we have almost the worst possible conditions for atmospheric corrosion, although that is not generally realized. (I am referring to an ordinary kitchen, where there is no attempt at air conditioning.) There are sulphurous fumes and carbon dioxide from the gas stove; it is rare to find a gas stove with ducting to take the burnt waste products away; very few gas engineers bother to fit such things. That means that the atmosphere contains two of the most unpleasant impurities and, of course, there is also a great deal of condensation, as a result of boiling kettles and pots and so on. The atmosphere in the ordinary kitchen, therefore, can fairly be called an industrial atmosphere, and one thing I should like to see, almost more than any other architectural improvement in houses, is the general adoption of the air-conditioned kitchen, or at any rate a kitchen so ventilated that the fumes from the various operations are properly led away. Otherwise the attack on such things as water pipes, electric switches and fuses, and on metal fittings in the kitchen can be very severe and extremely unpleasant. There can also be bad attack on metal window frames in kitchens, when it does not occur in other parts of the house.

It is of interest to note that if we reduce the humidity of polluted air to something of the order of 50-60 per cent relative humidity, the air becomes practically non-corrosive towards most metals. It is only when the relative humidity rises above 70 per cent or so that sulphur dioxide and carbon dioxide become virulent; in comparatively dry air they are hardly effective in producing corrosion, so that only a minor degree of air conditioning is necessary to give a quite non-corrosive atmosphere. This has been strikingly shown by

the recent experience of the U.S. Navy with air-conditioned laid-up ships. Stores are sealed up in the interior of the ship and dry air of relatively low humidity is pumped through. By this process, called in the U.S. dehumidification, stores are preserved in perfect condition for many years, whereas in the ordinary atmosphere of a harbour, with at least 90 per cent relative humidity and salt spray, deterioration can be extremely rapid. This is an example of how air conditioning can be used to prevent corrosion on a fairly large scale, and I feel sure that it is not beyond the wit of designers of homes to provide as a general rule a properly air-conditioned kitchen, which will mean that there is very much less corrosion inside it.

I have tried to give an outline of the various methods which are available to protect various metals of interest to the architect. To keep within an hour, I have had to be extremely brief and very general. There is one point, however, that I should like to leave with you, and that is that all the methods known for protecting metals from corrosion can be and are used in architecture. Every one of them, however, has its own particular field.

I shall welcome questions and contributions from members of the audience, because on occasions such as this the lecturer, from the questions and discussion at the end, can learn more than his audience.

## DISCUSSION

**Dr. D. G. R. Bonnell** (Building Research Station): I should like to thank the Architectural Science Board for inviting me to hear this extremely instructive lecture on a subject which is very pertinent and important to architecture in general.

Dr. Hoar has given us a clear summary of the methods which are open to us all for protecting metals, and has mentioned various points which must be watched if the protective coating is to serve a useful purpose. I think that this information should be an extremely useful background to architects and should enable them to ensure that any work done for them is carried out to the best advantage.

There are several points in the lecture which I should like to emphasize, and the first is that no matter what method of protection is employed the careful preparation of the surface to be protected is necessary; inadequate preparation can lead to a very short life of the protective coating, and therefore it is wise to pay considerable attention to the preparation of the metallic surface to be coated.

Another point which Dr. Hoar emphasized, and which I think can never be over-emphasized with regard to painting, is the behaviour of the priming coat. It is often not realized that the priming coat plays an extremely important part in the whole painting system. It is required to provide a coating which will have good rust-inhibiting properties; it should have good adhesion to the metal which it protects, and in addition it should provide an extremely good found-

ation for the top coats of paint—the undercoat and the finishing coat. In fact, I think we might consider that the function of the undercoat and the finishing coat is really to provide an impermeable coating to protect the priming coat and keep it in constant, continuous dry contact with the metal which it protects. Our experience has shown beyond any doubt that poor quality and poor adhesion of the priming coat may often lead to the need for complete repainting in a comparatively short time.

In dealing with structural matters, it has occurred to me that even though the architect knows about the various methods of protection there is another factor which tends to make his life much more difficult, because normally his aim is to provide a simple and most inexpensive method of protection to give him the result that he wants, and his difficulty arises in deciding which method of protection to apply, because economics always comes into it.

Let us take a case in point. During the last few years the question has arisen of what degree of protection is required with light-gauge steel members when they are enclosed in the cavities of external walls. You have not the massive amount of metal that you have with your normal steel stanchions and beams, and therefore the factor of safety is not so high. In 1944-45 the British Standards Institution set up a committee of experts to deal with this subject of the protection of light-gauge metals against corrosion, but, although they published an extremely useful document (PD420), which probably you all know, they were unable to deal specifically with the degree of protection necessary for light-gauge iron and steel when enclosed in the external cavities of walls, and the reason is that there was insufficient information regarding the conditions prevailing. They realized, of course, that the conditions might cover a wide range of corrosive conditions, and there were very few data to enable them to make any definite statements on the subject. It appears on the face of it rather strange that there should be so little information available with regard to the conditions prevailing inside cavities, but I am afraid that it was a case of many opinions and few facts, with the result that the committee had to state that it would appear to be better to play for safety under these conditions.

That kind of conclusion appears to me to leave the architect right in the air, because he may find himself in the position that if he applies too high a degree of protection, economically his design becomes impracticable. That is merely one example of an aspect of this subject of the protection of iron and steel against corrosion for structural members that wants far more work done on it, and it is a field where I am confident architects can make a very serious contribution towards the solution of the problem; because if the scientist could get collated reports from architects of the behaviour of the various protective schemes which they have applied, then un-

doubtedly he would be in a far better position to give a reasoned statement of the form of protection which would give them the simplest and most satisfactory solution of their particular problem.

Dr. Hoar mentioned the use of lead for damp-proof courses, and here I must say at once that the Building Research Station has not been able to pursue the work which it did on the corrosion of lead which Dr. Hoar mentioned, since the time of which he spoke. Other problems have come up of much greater urgency and have had to be tackled first. Recently, however, a doubt was expressed to me with regard to the suitability of copper as a damp-proof course in the unprotected state, and I am wondering whether Dr. Hoar would like to express an opinion on the suitability of unprotected copper for damp-proof courses. I have been given to understand that copper has been used for damp-proof courses, but unfortunately I have not been able to trace any specific cases where it has been used, so that we could examine them. If any architect here has any information of authentic cases where copper has been used as a damp-proof course, I should be very glad of the information.

Another point which Dr. Hoar mentioned was the use of zinc for roofing. In a number of cases we find that zinc does not have a long life when used, say, as flashings round chimneys. Probably the trouble is of a similar nature to that found with lead, and is due to the action of the free lime in the mortar; but I should like to have Dr. Hoar's views on that.

Another point of interest is the spraying with oil film as a protection, to which he referred. I wonder what sort of a life that oil film would have, and secondly whether, towards the end of its life, when further protection would have to be applied, it would interfere with any other form of protection applied at that time.

Our own experience with regard to metal chimneys is similar to that of Dr. Hoar, namely that there is no real solution to this problem at the present time, but I should like him to express an opinion on the use of vitreous enamel. Would the thermal movement of the metal seriously affect the efficiency of a coating of that nature?

**Mr. R. A. F. Riding [4]:** I cannot for one moment compete with the speakers whom we have heard this evening as regards scientific data and the extremely scientific means which have been and are used for the protection of these various metals, and I am only sorry that I did not hear this lecture about six months ago, because since that time we have had to use a large amount of second-hand steel, and if we had known what Dr. Hoar has been telling us about the cleaning of the steel it would have saved us a tremendous amount of trouble. However, by various means, and mainly by getting other people to make inquiries, we did arrive at something like the treatment outlined by the lecturer.

I notice that most of the protective measures described are in the nature of paints, and I should like to ask whether

there is any possibility of adopting what might be called more fundamental treatment, something by which the metals themselves might be made more resistant, as in the case of stainless steel. If that could be done it seems to me that it would save an immense amount of trouble, though the paint manufacturers might not like it. If any of you have been to Edam in North Holland you will have had pointed out to you the celebrated little bridge which spans the canal right in the centre of the town. The ironwork of that bridge was fabricated, I believe, somewhere about the time of Elizabeth; it has never been treated, and there is not the slightest suggestion of rust or corrosion. The legend goes that the secret has been lost. Possibly the lecturer can tell us something about that.

I should also like to ask whether there is any possibility of the development of aluminium to attain similar ends. This painting question is a serious one; on a very large structure several hundred painters may be constantly employed. That is true of the Forth Bridge, for example.

**The Chairman:** Is anybody going to speak about the horrible picture we have had of what happens to steel inside reinforced concrete structures?

**Mr. W. T. Gedge:** I speak as a visitor and as a member of a gas company which has had considerable experience with reinforced concrete work. I think that the reason why steel bars are allowed to go rusty is that it is essential to remove the mill scale. Reinforced concrete depends on the bond between the concrete and the steel, and if the scale remains you will not get perfect adhesion between the concrete and the steel.

Last week I had the experience of seeing a concrete structure being pulled down. It had been up for a number of years, but the steel was in perfect condition. We have had a good deal of experience where concrete has been in close contact with a very corrosive atmosphere, and where the concrete has cracked the steel has been attacked; it is necessary to have a good concrete, without cracks.

I have not had experience of copper for damp-courses, but we have used copper considerably as flashing for parapets where we have had composite waterproofing, and the copper has stood up remarkably well. There seems to be no action by the free lime when the copper is built into brickwork.

**Mr. J. Hurst:** Many methods are being adopted today to ensure that the concrete is absolutely non-porous, by correct grading and, in certain instances—when concrete is below ground level—coating the external face of the concrete with bituminous solution or something else which will prevent ingress of moisture into the concrete. With many of the floating concrete docks which were built during the war, which were perhaps four inches thick, the external and internal faces of the concrete were coated with bituminous solutions to prevent sea-

water entering the concrete and attacking the steelwork.

Where you have reinforced concrete stanchions with a very thin coating of concrete and bricked on the outside, by reason of constant wetting of the brick you get sulphate in solution and corrosion of the steelwork. There again it is always good practice, and I know that it is being done with two large buildings in London at present, to coat the external face of the concrete before bricking.

On the question of metal spraying, it is not often that one has the opportunity of meeting such an eminent authority on this subject as Dr. Hoar, but my own people are doing a great deal of experimental work on making metal spray non-porous, especially under acid influences. We have always regarded it as one of the drawbacks of metal-sprayed zinc, as against hot dipped, that the sprayed coating is porous. You do get the sacrificial protection of the zinc, but with sprayed aluminium you do not get that inhibitive protection. We have experimented with coating both metallic zinc and metallic aluminium with zinc chromate-pigmented priming coats in impermeable resins such as chlorinated rubber, finishing off with finishing coats of the same material to get an impermeable coating, and to get the inhibiting sacrificial action of the zinc if there is a fracture.

On new galvanized coatings it is the usual practice to apply mordants prior to painting. For many years those mordants have contained hydrochloric and sulphuric acid and copper sulphate, but in our opinion copper sulphate is a dangerous material to put on zinc; you get the action of the copper and the zinc, which are both very reactive. We feel that the commercial practice of including copper sulphate in mordants should stop. Our experience is that phosphoric acid is very much to be preferred to anything containing copper sulphate.

The question of mill scale has been raised. In the old days the steelwork would lie in the yard for six to nine months and rust, and then go on the site and be chipped, wire brushed and painted. That is not as satisfactory as pickling, but is far more satisfactory than the modern method of chipping and wire brushing at the works plus, as so often happens, a priming coat, the material then being sent to the site, where two further coats go on the steel work. After 12 to 18 months the mill scale is shed, with all the paint on it. Our own experience is that the only alternative to that, after the steel is erected, is something like flame cleaning.

I should like Dr. Hoar to tell us his opinion of sherardizing on chimney stacks subject to high temperatures.

**Mr. E. Brimelow (Ministry of Works):** It is of interest to consider the amount of non-ferrous materials used in the building industry. The building industry today uses approximately 20 per cent of the copper and brass sheet and strip produced and 26 per cent of the copper tubes, while the zinc products in the form of sheet and strip



may amount to 31 per cent. Those figures show the need to watch the ravages of corrosion.

There is one aspect of the subject on which I had hoped to hear more from Dr. Hoar, namely the effect of design on corrosion and the need for designing to prevent corrosion. We all know that moisture and atmosphere in the form of oxygen and other gases play an important part, and are in fact essential for corrosion to take place. We often find a building which is simply asking for trouble; instead of allowing for moisture to drain away and the surface to dry rapidly the opposite is the case. More attention by architects to such points might save a great deal of trouble from corrosion.

I should like to know what Dr. Hoar thinks of aluminium sheeting as an internal lining for chimney stacks, and how he thinks that it would stand up to the conditions. There is a good deal of evidence to support the statement that aluminium stands up better than most other metals to dilute solutions of sulphurous acid, and in that connection its use in a chimney stack may be desirable. Dr. Hoar seemed to express a preference for a zinc coating rather than an aluminium coating, whether sprayed or dipped. I should like to have a little more information on that. There has been certain information which suggests that the thickness of coating, whether of aluminium or zinc, is all-important, and, of course, weight for weight one could put on a thicker coating of aluminium, which may give added protection.

On the question of the attack on steelwork in concrete, I think that some of the points already mentioned are of importance. There is the exclusion of moisture, either by a crack-free rendering or by having a suitable thickness of concrete to prevent the access of moisture to the steelwork. I feel that that is of vital importance in avoiding trouble from the rusting of the reinforcement.

On the plumbing aspect, and the use of mixed circuits—that is, copper piping in conjunction with galvanized steel cisterns—there is one effect of the use of galvanized coatings on hot water systems which should be taken into account whether or not copper is in the circuit, and that is that galvanizing may not behave wholly as a cathodic protective medium; instead, it may reverse in polarity and become anodic. That is important, because one might consider whether to use copper at all, whether on the input or the output side of a mixed circuit. Has Dr. Hoar any comments to make on that?

Dr. Hoar referred to the porosity of chromium coatings, and I think that a similar note of warning should be issued in regard to tin coatings on copper, which are so frequently used in canteen and other services. Porosity in the tin coating may be as harmful as in a chromium coating, in that you get accentuated attack at the pores.

**Mr. J. McKinley:** There have been several remarks made about metal coatings, and reference has been made to the thickness

of the coating, but is not it true that it is the weight which is the deciding factor? If you have hot-dipped galvanizing and zinc spraying, for similar thicknesses you get different weights: is not that true?

**Summary of Dr. Hoar's replies to questions:** Collated reports from architects on established cases of corrosion would be very helpful, but the facts must be accurately observed and reported.

I have not met a case of copper used as a damp-proof course, but I would say that there would be some corrosion from the free lime, although not great. Some copper salt might stream over the brick or stonework, but that should not be detrimental. From the purely metallurgic point of view there would be a case for using reasonably thick copper, say 16 to 18 gauge. Zinc is not a suitable metal to have in contact with brickwork because it is very sensitive to alkali, and the attack of zinc by alkali is much worse than the attack of lead.

I have no direct knowledge of the oil film question so far. Renewal would probably mean re-oiling, as the oily surface would not be suitable for painting, but if done early enough re-oiling would probably restore the coating more or less to its pristine state.

The use of vitreous enamel on metal chimneys is an attractive idea, but as the chimney is bound to be made up of sections of sheet, how would the edges and the rivet holes be vitreous enamelled, as at present it is almost impossible to vitreous enamel *in situ*. Some progress has been made with spraying it, and if you could have a complete coating up the chimney, with the joints touched up, there might be a case for it, but the swaying of the stack in the wind would be detrimental to the enamel from the mechanical point of view. From the corrosion point of view it would be excellent.

To a certain extent it is true that for similar thicknesses of hot-dip galvanizing and zinc spraying you get different weights, and it may be right to lay the emphasis on weight instead of thickness, but it is only a matter of about 10 per cent.

Low-alloy steels may be used for structural purposes, and the copper-phosphorus and copper-phosphorus-chromium low-alloy steels, containing around 0.5 to 1 per cent of alloying additions, are much superior when exposed to the atmosphere than mild steel, and probably in the painted condition also. But very low-alloy steels are more expensive than ordinary mild steel. The Americans are using it and claim an economic advantage in those cases where lighter gauge steel can be used.

The old Dutch bridge must have been made of wrought iron, which, owing to the method of manufacture, consists of layers of iron and slag. Corrosion causes the surface iron to flake off, exposing the slag layer; this being a glassy material is not corrodible. That is why wrought iron so often stands up for very long periods, even when unpainted. Also, the old structures were well designed, without pockets where water can linger.

Aluminium is not entirely corrosion-resistant; it pits severely in many kinds of atmosphere, and that can be as bad as the rusting of steel. To get a good paint film to adhere the surface must be chemically treated.

Looking to the distant future one might consider titanium. It is still only a metallic rarity, but the Americans have produced it in ductile form. It is extremely corrosion-resistant. If it can be produced in quantity, it may be the metal to which all kinds of architecture will look in fifty or a hundred years' time.

From remarks made this evening I gather that weathering is still used to a large extent for removing scale. The bond with concrete would be better still if the metal were pickled so as to allow clean metal to be put in the concrete. I would support the idea of a bituminous layer to seal the concrete on the outside.

My experience shows that a zinc sprayed coat, and aluminium painted with zinc chromate and a top coat, are very useful. Mill scale must be removed, if subsequent protection is to be reasonable. Weathering for six months is not enough. Flame cleaning has been successfully used, but the process is still in the stage of development.

From general principles I should feel that sherardized coatings on chimney stacks are not likely to last long. Zinc is not good in sulphurous atmosphere; galvanized iron is bad in ducts from geysers, and sherardized material, being a zinc-iron alloy, is not likely to be better.

Aluminium does no doubt resist high-temperature and sulphurous corrosion fairly well and the idea of its use for chimney stacks has its points. At normal temperatures I should prefer zinc coatings for corrosion resistance, as aluminium is better for heat resistance. Sprayed aluminium has been successfully used as an undercoat for paint, in the same way as sprayed zinc has been used.

Reversal of zinc polarity in galvanized iron does sometimes take place at high temperatures, but probably most domestic hot water boilers do not get sufficiently hot, namely, about 70 to 80 degrees C. If reversal did take place I do not think it would be serious, because the zinc—when anode—is an ineffective one as it is coated with a corrosion product, so the amount of current passing need not be great.

I do not think tin coatings ever accelerate attack on copper, as tin is never cathodic towards copper. Such coatings do not give much protection at holes and pores; this may occasionally be important from the point of view of contamination of food-stuffs with copper.

With regard to the galvanic action between lead and aluminium, aluminium will nearly always be the anode; also, if there is any lead dissolved, lead salts seem to have a peculiar effect on aluminium. Lead paint must not be put in contact with aluminium, or there will be serious deterioration; therefore a lead-aluminium galvanic system is not to be desired.

# STONE

By A. H. Moberly, M.A. [F]

THE TIME WILL COME (who knows when?) for architects and builders to undertake the arrears of building work which have been accumulating for so long. From 1939 to 1945 hardly any building was possible unless it helped to win the war; and from 1945 to 1949 building has been confined to meeting a small number of urgent needs. As a result many of the normal activities of the building industry have been lying dormant for nearly ten years, and, when they are again required, they may prove to be almost lifeless. Architects may find, when restraints on fine building are removed, that their new freedom is worthless to them owing to a lack of the necessary materials and, still more, to a lack of men capable of fine craftsmanship.

The recently published report\* on the Recruitment of Masons reveals an alarming instance of this paralyzing effect of idleness. The masons' craft has been left almost unused for ten years, and there is a real danger of its practical extinction. This may appear incredible or an absurd exaggeration; but here are the facts: In 1923 masons formed about six per cent of the total number of building craftsmen; by 1939 they were reduced to little more than four per cent. By 1947 the figure was just over two per cent; but the reduction in the numbers employed in connection with building is far more serious than these figures indicate, as monumental masons are included in the figures quoted above, and there has been no comparable decline in the employment of monumental masons. There are no statistics available to show the numbers of masons now being employed in or for the building industry alone, but it is known that in London, where the number of stone buildings in course of erection is a tiny fraction of the pre-war number, there has been real difficulty in recruiting the masons required.

That is the present position. But the future depends not so much on the number of masons now available as on the number of new recruits who are being apprenticed. We have already seen that, as compared with other building craftsmen, the percentage of masons dropped from six to four between 1923 and 1939. The Building Apprenticeship and Training Council now aim at recruiting annually as mason apprentices at least two and a half per cent of the total annual intake of apprentices to the building crafts.

There are several reasons for not attempting to maintain the pre-war ratio of four per cent. It is clear that—apart from present difficulties—there has been a tendency for the number of masons to decline, and this tendency may be expected to continue to some extent. The first reason has been the increasing use of stone-cutting machinery, which reduces the numbers em-



Old and new stone building. Cottages for Witney R.D.C. by Peter B. Dunham [F]  
Photo: Crown Copyright

ployed in relation to the volume of stone used. As this mechanization is more possible in large-scale workshops and yards attached to quarries than on individual building sites, the working of stone has been, for many years, increasingly carried out at the quarries, with the additional advantage of making some saving in transport costs. A second reason for a decrease in the number of masons has been the tendency for architectural design to be simpler in detail than that of a generation ago, thus again reducing the amount of hand work necessary. A third reason has been the substitution of alternative materials, and especially so-called 'cast stone' or 'reconstructed stone,' which, when first fixed, is almost indistinguishable from stone, but which, after a few years of weathering, is generally better described as concrete.

For all these reasons the Building Apprenticeship and Training Council has now estimated the probable future demand for masons as being at least two and a half per cent of the total number of craftsmen needed in the building industry. This is certainly a modest estimate, and involves the recruitment of only 550 mason apprentices a year. But it is far in excess of the numbers coming forward, which, for the last three and a half years, have averaged only 160 a year, or between a quarter and a third of the Council's modest suggestion. This is such a pitiful number that, unless a drastic change takes place, stone building will become virtually impossible, and there will not even be enough masons to keep our heritage of old stone buildings from falling into decay. It is difficult to imagine a situation in which cathedrals and churches throughout the country and the lovely stone buildings of the Cotswolds, for example, could not be maintained due to lack of men

capable of carrying out essential repairs. Yet this may actually happen. It is, therefore, essential to discover the reasons for the shortage, and to remedy them if that is possible.

There is no doubt at all about the main reason. Boys about to leave school are given ample opportunity for discussing the pros and cons of possible careers, and they and their parents are not secretive in expressing their views. The reason why so few are attracted to masonry is because they and their parents can not see an assured prospect of steady employment.

The economic condition of the country is so different now from what it was between the wars, and it is now so much easier for boys to pick and choose what they will do, that it is quite possible that there would be a shortage of mason apprentices today even if present prospects were as good as those of twenty years ago. What is certain is that the immediate prospects are not good, and that the consequence is a disastrous lack of new entrants.

Insecurity of employment is certainly the main trouble, but there are a number of other causes which contribute to the difficulty in obtaining recruits. Among these are the uncomfortable conditions in which masons have to work at many quarries and yards: there is frequently no protection provided against bad weather, and canteens are not generally available.

To some extent the present position forms a vicious circle. If there were more masons available, there would probably be more stone building, and until there is more stone building the lack of masons will not only continue, but become progressively more and more serious as the older men drop out and are not replaced.

It is essential for architects to grasp this

\* Recruitment of Masons: Special Report of the Building Apprenticeship and Training Council. Published by H.M. Stationery Office, 1949, price 3d.

situation, and to make up their minds on their attitude towards it. If architects are content to use whatever materials are readily available, and to abandon, almost entirely, the use of stone, then no action is called for. But if they regard stone as one of the most important, as well as one of the most ancient, of building materials, the disuse of which would be a real disaster, they must bestir themselves, and take energetic steps to control the situation. For it is architects who will be affected far more than any other section of the community; and it is architects who can do most to reverse the present decline in the masons' craft.

The report makes a number of recommendations, and the Minister of Works, to whom the report was addressed, has accepted those recommendations, and undertaken to do his best to implement them. They are of sufficient importance to be worth quoting in full:

I. The Ministry of Works and other Government Departments concerned should give urgent consideration to ways and means of starting new building work in stone.

II. The minimum number of mason apprentices to be recruited annually should be  $2\frac{1}{2}$  per cent of the apprentices estimated to be required for all the building crafts. If the Council's recommendation for the recruitment of 22,000 apprentices per annum is approved, at least 550 of this number should be masons.

III. The Government should consider in suitable cases the possibility of giving special financial assistance to meet the extra cost of building in stone rather than in brick.

IV. More repair work in stone should be licensed.

V. The total amount of work sanctioned should at least be sufficient to provide adequate facilities for the employment of 550 new apprentices each year.

VI. The attention of the Royal Institute of British Architects should be called to the importance of sustaining the stone industry through its present difficult period by the maximum possible use of stone, even where it can only be used for sills, copings, etc.

VII. Research should be carried out with increased vigour into methods of minimizing the incidence of silicosis.

VIII. The Mason Apprentice Master Scheme should be reviewed with the object of making it more acceptable to those likely to be able to provide facilities for training on suitable projects.

IX. The Ministry of Works should consider to what extent apprentices could be engaged on the maintenance of Ancient Monuments or on other appropriate work carried out by the direct labour force of the Department.

X. The attention of quarry owners should be called to the need for providing can-

teens and adequate shelter for their workers.

XI. Finally, the widest publicity should be given to the national importance of masonry, to its future prospects as a craft, and to the need for recruits and for their appropriate training. Close touch should be maintained between Joint Apprenticeship Committees, the Youth Employment Service and the Local Education Authorities. The possibility of further publicity should be considered in the light of action taken on the recommendations above.

The sixth recommendation is the one which is capable of the widest influence if architects take it seriously. They generally can play their part in supporting any further action which the Council may see fit to take and can let it be known that they have no intention of abandoning the use of stone in their future buildings, and they can use stone now whenever stone is suitable. This last will not be easy. Masons are scarce, and bricklayers are comparatively plentiful. The line of least resistance is to avoid any attempt to use what is scarce—and under present conditions architects already have sufficient difficulties to overcome. But in this case it is a virtue to demand the scarce, and it is only by doing so that scarcity can be turned into abundance. When it is found that there is a constant demand for more masons than are available, the tide will turn, and the supply of recruits to the masons' craft will begin to increase in earnest.

## Practice Notes

Edited by Charles Woodward [A]

**IN PARLIAMENT. Development Charges (Charities).** Asked if he was aware that the fear of a development charge is preventing charitable institutions, not run for a profit, from acquiring the properties essential for the carrying out of their responsibilities, and if he will take steps to provide exemption from development tax in such case, the Parliamentary Secretary to the Ministry of Town and Country Planning replied: There is no ground for such fear. Provided that a charity pays no more for land it requires than the value of that land for its existing use, the total cost of the land after payment of development charge ought not to be more and might well be less than the charity would have paid before the Act was passed. For further details, I would refer the hon. Member to Part 3 of the Practice Notes on Development Charges which the Central Land Board have just issued.

In answer to a further question the Parliamentary Secretary replied: Land in the possession of charities on 1 July may be exempted from development charge. New land they acquire should be purchased at existing use value and then there may be a development charge (22 March 1949).

**Hospitals Boards (Architects).** Asked how many regional hospital boards have appointed full time architects; how many others have invited applications for such

appointments; for what reasons these are justified; and, in particular, whether the work of the regional architect is advisory or executive in character and includes work initiated by hospital management committees under the board, the Minister of Health replied: Twelve regional hospital boards have appointed full time architects. Of the remaining two, neither has yet invited applications for such appointments. The regional boards are responsible for all capital works of construction, reconstruction and adaptation at non-teaching hospitals, and also for the supervision of major schemes of building maintenance. The majority have found that this necessitates the employment of full-time professional officers. The work of the regional architect may be both advisory and executive and include the handling of proposals designed to meet needs made known to the boards by hospital management committees. (31 March 1949.)

**Town and Country Planning. Appointments (Architects).** Asked how far he requires local authorities who have the responsibility of carrying out the Town and Country Planning Acts to select for positions where architectural decisions have to be made only individuals who possess the official recognition of one of the statutory bodies who grant recognition of such professional qualifications, the Parliamentary Secretary to the Ministry of Town and Country Planning replied: My right hon. Friend has no power to impose such requirements on local authorities.

Asked further, is not the Minister perpetrating the thing he is trying to avoid when he insists on incompetent people deciding on architectural subjects about which they know nothing at all? Is he aware that men like Michelangelo, Sir Christopher Wren and Sir Edwin Lutyens all said that the circular window was very satisfactory and yet one of his representatives said it was totally undesirable? Is not this very unsatisfactory?

The Parliamentary Secretary replied: I hesitate to say of how much of that my right hon. Friend is aware, but in fact nearly all local authorities do employ such architects and such advice is already given to such authorities. This is simply a question of law and there is no legal power to do what the hon. Gentleman requires.

Asked further, where an architect is not so employed, will the Minister of Town and Country Planning recommend to the local authority that one should be so employed? The Parliamentary Secretary replied: I should be most interested if the hon. and learned Gentleman could give me a case where an architect is not employed (15 March 1949).

**Architectural Advice.** Asked whether it is for the repair and conversion of houses of archaeological or of architectural interest that he is going to provide special architectural advice, the Minister of Health replied: It is my intention that expert advice should be obtained before works are carried out with assistance under the Bill in respect of houses in either category. Asked



further whether the word 'archæological' was used by mistake in the Second Reading Debate, the Minister agreed that it was a slip and the word was intended to be 'architectural.' (March 24 1949.)

**Development Charges (Charities).** Asked if he would exempt from development charges land acquired by charitable organizations for the purpose of building houses for the aged, the Parliamentary Secretary to the Ministry of Town and Country Planning replied: No, Sir. A charity holding land on 1 July 1948 for the purpose of building homes for the aged can secure exemption from charge under section 85 (5) of the Act. Land purchased after that date for that purpose should be acquired at existing use value and with development charge should cost no more than it would have done had the Act not been passed. Asked further whether he was aware that in many cases this development charge is both unfair and onerous, and will he make exceptions in the case of these charitable organizations on land which they may purchase in future, the Parliamentary Secretary replied: No, Sir. If the concession which the hon. Gentleman has in mind was made, it would not benefit the charity, but the seller of the land, who would obtain more for it than he ought to obtain. (29 March 1949.)

**TOWN AND COUNTRY PLANNING ACT, 1947.** The Central Land Board have made their first Compulsory Purchase Order under the above Act. It concerns a plot of land at Southcroft Road, Orpington, upon which planning permission had been granted for the erection of two bungalows in May 1947. The area of the plot is about one-fifth of an acre.

The Board will purchase the plot compulsorily and then dispose of it for the permitted development under Part 3 of the Act, on terms inclusive of any development charge payable.

**Circular No. 69 dated 17 March 1949** addressed to local planning authorities in England and Wales refers to the large number of appeals which have come before the Minister under the 1947 Act, in consequence of which he has thought it necessary to review the position and consider whether the policy followed by the authorities may not be capable of adjustment and improvement in certain directions, and whether more positive action could be taken at an early stage to prevent the necessity of an appeal.

The Circular states that there are cases where authorities have admitted that, in order to avoid the responsibility of deciding an application in favour of the applicant in a borderline case, they have preferred to refuse permission and place the responsibility of deciding the application on the Minister. This practice is open to objection. In cases where no serious issue is involved and where the authority can produce no sufficient reason for refusal, the presumption should be in favour of granting the application.

Recent decisions have shown that there is a tendency on the part of some authorities towards too rigid an application of planning principles. Most authorities will agree that if this tendency is not checked it will bring discredit on planning. There should be a greater readiness to admit the existence of exceptional cases. Refusals of permission are sometimes due to the fear of setting up a precedent. The merits of particular cases differ widely, and where, apart from precedent, there are good reasons for allowing an applicant to carry out development, the fact that the granting of permission in this case may lead to other applications being made should not be accepted as a sufficient reason for refusal. It does not necessarily follow that those other applications should be granted. It may sometimes be necessary for the authority to take the line that whilst they will consent e.g., to the erection of one or two houses in a particular place, they will not consent to more.

The Circular deals with the granting of temporary permissions and to authorities being generally opposed to such permissions on the grounds that it is difficult to secure the removal of the building or discontinuance of the use and the development thereby becomes permanent, that such permissions embarrass the preparation of the development plan, that temporary buildings tend to fall into disrepair, and that such permissions encourage other similar applications.

It is pointed out that shortage of accommodation may often justify a temporary permission and where a proportionately small extension of existing development or use is concerned a grant of, say, five, ten or even twenty years can do no harm and will result in assisting production, enabling a business to be kept going or adding to its efficiency, providing additional living accommodation or ensuring that a building or site is put to some useful purpose pending the carrying out of development. The Minister is considering the position under Section 23 of the Act, and in the meantime authorities are advised to determine applications on the assumption that adequate powers of enforcement will be available to them at the appropriate time.

The Minister is of the opinion that an appeal could in many cases be avoided if full weight were given to the considerations set out in the Circular.

**Circular No. 68 dated March 1949** states that Compensation Appeal Tribunals have now been set up by the Minister of Labour and National Service to deal with appeals arising out of compensation claims by officers under the Town and Country Planning (Transfer of Property and Officers and Compensation to Officers) Regulations 1948 (S.I. 1948, No. 1236). The Tribunals will sit at the regional National Service Employment Exchanges and appeals will normally be dealt with by the Tribunal for the Region in which the appellant is or was last employed.

**MINISTRY OF HEALTH CIRCULARS.** **Circular 17/49 dated 16 March 1949** refers to the Housing Act 1936, and to recent

cases in which landlords have been given possession of houses which are overcrowded in such circumstances as to render the occupier guilty of an offence. The Minister thinks that the protection given to occupiers under section 59(3) and 61 of the Act may not be sufficiently widely known.

The Circular states that section 59(3) covers the case of a family whose house becomes overcrowded owing to increases in the number or ages of the children. In such cases an occupier will not be guilty of an offence if he applies to the local authority for suitable alternative accommodation, but if he refuses such accommodation or fails to ameliorate the overcrowding by displacing a lodger or sub-tenant who is not a member of his family, then he will be guilty of an offence, unless the displacement would not be reasonable or practicable. In such circumstances an application by the occupier to be put upon the local authority's waiting list will in general be sufficient to give him protection.

The local authority can, under section 61 of the Act, in exceptional circumstances, allow the temporary use of a house by persons in excess of the permitted number. A licence would be granted by the local authority for a period not exceeding 12 months, allowing such number of persons in excess of the permitted number as may be specified in the licence.

Where local authorities become aware that a landlord is taking steps, under section 65(1) of the Act, to recover possession of an overcrowded house, they are asked to bring to the notice of the occupier his rights under sections 59(3) and 61. The granting of licences in such cases may be urgent and the Minister suggests that the power to issue licences could be delegated to a Committee.

**Circular L.R.L. 4/49 dated 17 March 1949** addressed to Housing Authorities in the London Region refers to the rebuilding of houses, owned by the local authority, on a cost-of-works basis under the War Damage Act.

The cost of reinstatement of a house (in substantially the same form) as approved by the Minister will be accepted for reimbursement by the War Damage Commission and copies of all approved tenders have been sent to the Commission.

Where the actual cost of rebuilding has exceeded the approved tender, the Minister's approval to the additional expenditure must be obtained before application for reimbursement is made to the Commission. Applications to the Minister in respect of completed schemes should be accompanied by a statement, in duplicate, in the form set out in the Appendix to Circular 36/47 dated 14 March 1947.

**THE HOUSING BILL.** This Bill is now before Parliament and among its provisions is Exchequer assistance for the improvement of housing accommodation either by local authorities or private owners in both urban and rural areas.

Grants will be payable by local authorities for approved schemes carried out by private owners. The estimated cost of the work must not be less than £100 or more than £600. (This upper limit can be increased with the Minister's consent, e.g. for houses of architectural or historical merit.) A scheme must conform to standards of fitness and amenity approved by the Minister, and provide satisfactory accommodation for not less than 30 years. The amount of grant will not exceed one-half the approved estimated cost of the work.

Where improvement grants are payable to private owners, certain conditions must be observed for a term of 20 years. These include:

- (a) the accommodation, unless occupied by the applicant or a member of his family, must be let or be available for letting;
- (b) if the accommodation was not let during the five years previous to the improvements, the maximum rent will be fixed by the local authority;
- (c) the only permissible increase of rent of dwellings previously let will be six per cent of the cost of the improvement falling on the owner.

For any breach of these conditions the owner may be called upon to repay with compound interest the balance of the grant for the unexpired period of the term of 20 years.

No grants will be made in respect of 'tied' cottages unless the owner is prepared to create a tenancy.

Control of the rent and selling price of new houses built under licence is to be extended from 20 December 1949 until 20 December 1953. Similar control will also apply to new dwellings formed by conversion of existing buildings. A local authority will be able to allow some increase in the permitted selling price for additional work carried out after the house has been finished.

The present limit of £1,500 on the market value of houses for which councils may lend money for purchase under the Housing Act 1936 or the Small Dwellings (Acquisition) Acts is raised to £5,000.

The extra subsidies already payable for flats and houses built on expensive sites will be adjustable so as to take account of variations in density of development.

There will be a special subsidy for residential hostels provided by new building or conversion by local authorities, new town development corporations, or by housing associations. This will be up to a maximum of £5 a year for 60 years for each bedroom.

This Bill applies only to England and Wales. A Bill on similar lines relating to Scotland will be published shortly.

**MINISTRY OF WORKS.** The Minister has made an Order (S.I. 1949, No. 479) which abolishes Statutory Control over the prices of Sanitary Fireclay Ware as from 28 March 1949. Manufacturers have agreed

to a voluntary system of price control, and their prices will not be varied except with the approval of the Minister.

The Minister has authorized an increase of 5½ per cent in current maximum selling prices with effect from 28 March and minor alterations to the prices of certain non-standard articles have been agreed in order to assist standardization. (Circular P.1.73 dated 26 March 1949, M.O.W./29/49.)

Agreed price lists for sheet glass and polished plate glass were introduced on 21 March 1949. The new prices represent an overall increase of 3 per cent on flat glass, and is secured by applying varying increases to the different types of such glass. The rise in price is due to higher costs of production. (Circular P.1.73 dated 23 March 1949, M.O.W. 28/49.)

**LAW CASES. Whitehead v. James Stott Ltd.** The Factories Act 1937, section 22, provides: '(1) Every hoist or lift shall be of good mechanical construction, sound material and adequate strength, and be properly maintained.'

A lift operator at a factory was injured when the lift in which he was travelling fell owing to the breaking of the shafting at the top of the lift shaft. The lift had been in operation for 25 years, and the accident was caused by a defect in the shafting which, though latent on ordinary inspection, could have been detected by modern methods.

The Court of Appeal held that it was not sufficient for the purposes of section 22(1) that the lift should be of material which appeared to be sound for its purpose on reasonable inspection; the requirement of the section was an absolute one of soundness; and, therefore, the occupiers of the factory were in breach of the duty imposed on them by the sub-section. (1949 1 All E.R.245.)

**Henry Butcher and Co. v. Warwick House Laundry (London Colney) Ltd.** The Court of Appeal allowed this appeal by the defendants.

The plaintiffs had obtained judgment for fees for professional services rendered in connection with the valuation of a laundry business, the judge holding, on the evidence, that a director of the defendant company, in giving instructions to the plaintiffs, was acting as agent for the company with their knowledge and consent.

The Court of Appeal held that the question depended entirely on whether the act of the director in giving the order, was one which was ordinarily within the powers of a director. Was it the kind of thing normally done by a director alone, he not being managing director or a manager? The Court did not think so. This was not like the case of a director ordering a ton of coals for his company. It was an order for the purchase of a separate undertaking, and in the view of the Court this was not a thing which would 'ordinarily' come within a director's powers. For these reasons the appeal was allowed.

In view of this decision architects would

be well advised to make sure that the person instructing them has the power to do so.

**J. Dennis and Co. Ltd. v. Munn.** This was an appeal heard on 23 February, from a judgment of the Marylebone County Court deputy Judge who gave judgment for the Plaintiffs, builders, in their claim for £26 17s. 6d. The judgment was for £4 15s. only, as the judge held that as there was no building licence in force for more than £34 15s. the plaintiffs could only recover an excess of £4 15s. over the £30 which had been paid on account.

In the Court of Appeal it was argued on behalf of the plaintiffs that they were entitled to judgment for £18 15s. because in addition to the licensed amount of £34 15s. they were entitled under the Control of Building Operations Order (S.I.74 1947) to do work to the value of £14 (£10 plus £2 a month) without a licence and that sum could be added to the licensed amount of £34 15s.

The Court dismissed the appeal and held that the £10 plus £2 a month could not be used to increase the amount of the licence in respect of any particular work, and the Order was not intended to add indirectly to any particular licence to do any particular work.

This decision seems to make it clear that in no case can the amount of any part of the 'free limit' be added to the amount of the licence in one and the same operation. It would appear that the work covered by a licence and the work done under the 'free limit' must be completely severable.

Under the Town and Country Planning (Interim Development) Act 1943 (now repealed by the 1947 Act) compensation was payable where planning was revoked or modified. The 1947 Act contains similar provisions.

In *Holmes v. Bradfield R.D.C.* (1949, 1 A.E.R.381) brought under the 1943 Act, a builder had obtained planning permission to erect a number of bungalows. The permission was revoked in June 1947. No building work had been done but the builder claimed compensation in respect of preparation of plans which had been done. The planning authority contended that compensation was not payable under the Act unless building operations had actually been begun on the site, but the court held the compensation was payable in respect of expenditure incurred in preparing plans, whether building operations had been commenced on the site or not. The court also held that compensation was payable where such preparatory work had been done before the planning permission was granted. 'If plans are prepared for the purpose of carrying out work for which permission is subsequently given and that permission is revoked before the actual building work has begun, the expenditure incurred on those plans is to be "deemed to be included in the expenditure incurred in carrying out that work".'

This interpretation of the 1943 Act would presumably apply to the similar provisions of the 1947 Act.

# Book Reviews

**Murray's Buckinghamshire Architectural Guide**, John Betjeman and John Piper, editors. 10 in. xii + 132 pp. incl. pls. + folding map. John Murray. 1948. 15s. John Betjeman and John Piper have between them produced an entirely new type of guide book for Messrs. Murray, and if, as it appears to be, this is the first of a series to be issued on similar lines, we must look forward with very great pleasure for those which are to follow.

The Guide is to the architecture of Buckinghamshire, and so well and thoroughly has it been done that it has come as a great surprise to many born and bred in the county to find that there are so many things existing in their own countryside of which they had no knowledge. It is, indeed, a compliment that the Guide is extremely popular amongst Buckinghamshire people.

Buckinghamshire is not usually regarded as a great architectural county, and, indeed, it cannot boast of the richness of the Cotswolds or some other parts of England, but it has a greater variety in buildings than some counties. It must be remembered that it stretches from the south, embracing such places as Slough, and extends right away to the north to Olney and slightly beyond, bordering on the stone country of Northamptonshire. It is still a rural county, and although industry has in some parts sprawled in an uncontrolled and ugly way, only certain areas are affected, and the county mainly retains an agricultural character, in spite of the patronage of the 'picturesque' village by corduroy-trousered Bohemians who smoke big pipes in the locals during week-ends.

The authors have been generous and catholic in their selection of illustrations, which in a limited way provide a pictorial history of English architecture. But they have gone farther than most guide books dealing with architecture by including in their survey and illustrations buildings of the Victorian and modern era. The text and captions are full of information for all interested in architecture—professionally or otherwise—and contain lots of gossip notes uncommon in similar books. For instance, it gives the name of the architect of that very pretty Gothic Revival church in Penn Street, Benjamin Ferrey, and reminds you that he was Pugin's biographer. It also gives the names of some other churches by the same architect in other parts of the country. Then we have some illustrations of the work of that fine Gothic architect of the 19th and 20th centuries, J. N. Comper, at Wooburn and Chicheley, besides some work by Butterfield. Nashdom, one of the most noble of Lutyens' country mansions, is also included.

By way of relief, the authors, perhaps with their tongues slightly in their cheeks, illustrate some of the between-war buildings, built in the truly fake rural manner, besides some known as the 'all-English style'; of the small car, classlessness and the century of the common man.

The illustrations are fine and very well reproduced, and some of the authors' comments are in the true Betjeman manner, such as: '*Bourne End*. It is not easy, or even possible yet, to admire this collection of shopping arcades, poles, wires, railway lines and new brick villas and bungalows which has the appearance of being at the back of some south coast seaside resort.' No doubt someone will take this to heart!

A nice book which all Buckinghamshire schoolboys and girls, besides grown-ups, should see as an aid to the development of appreciation of orderliness in building and respect for fine architecture, old and new.

F. R. YERBURY [Hon. A]

**The Story of a House**, compiled by A. B. Waters. Bernard Lintern, ed. 10½ in. by 8½ in. (v) + 126 pp. text illus. Illustrated Carpenter and Builder. 1948. 8s. 6d.

This is one of the few books which has attempted to describe what really happens when a building is designed and subsequently put up. To the student of architecture and building—it should be noted that the book is expressly directed to the latter as well as to architectural students—a detailed account of the procedure involved in the building of a small house is probably very helpful indeed. In no other text-book, and seldom even in lectures, is a coherent account to be had of practice and procedure related to the process of designing. In this book, details of procedure are related to one single project, and so the student ought, after reading it, to have a fairly clear picture of what an architect and a builder actually do. If this helps to satisfy the desire which most architectural students have for a 'sense of reality' so much the better.

The chapters which deal with trades, such as plasterers' work, are written by craftsmen of repute, and much of the information in each chapter is helpful. On the other hand, since it is written for both architectural students and building students one cannot help feeling that there is, equally, much which is of little interest either to one or the other, thus making the book less readable for both. Nevertheless, as a reference book, it would be useful in any architect's office; and for those amongst the lay public who can be persuaded to read it, it may be an encouragement, as the author points out, for them to be patient with their builders and professional advisers.

The production is unappealing, but then the price is only 8s. 6d., and considering the number of line drawings of plans, sections, elevations and details of all kinds, the value, by present standards, is good. There are photographs, but a disproportionate number are of sanitary fittings and household appliances, very badly reproduced, so that they do little to enhance the book.

J. EASTWICK-FIELD [A]

**The Cape Town Foreshore Plan**. Final report of the Cape Town Foreshore Joint Technical Committee, June 1947. [R. H. Kantorowich and others, eds.] 10 in. by 8 in. vii + 125 pp. + 2 maps in pocket.

text illus. [Cape Town.] Government Printer. 1948. £1 1s.

In natural surroundings of rock and ocean, a background equalled only perhaps by Rio de Janeiro, the City of Cape Town has grown up during the last century haphazard and unplanned.

From 1937 to 1945 an area of over 350 acres of Table Bay were reclaimed from the sea. This at once raised the problem of how the reclaimed area should be built up, and how it would fit in with the old city with its 17th and 18th century Dutch nucleus and its 19th century commercial centre. Two rival bodies strove to dominate the new plan. On the one hand was South African Railways and Harbours, a department of the South African Government, which owned the Central Railway Station and Docks and also the land reclaimed from Table Bay. On the other stood the Cape Town City Council, which was determined, in rivalry with the Government Railways' plan, to grasp the opportunity of replanning this oldest city of South Africa in its own way, as a 'Monumental Gateway to South Africa' against the grand scenic background of the Cape Peninsula, and as a town worthy to remain the seat of the national parliament.

In 1940 the South African Railways and Harbours published their report, by F. Longstreth Thompson and L. W. Thornton White [F], while at the same time another report, by Monsieur E. Beaudouin, was considered by the Cape Town City Council. There followed a battle for some years between the Government Railways, commercial interests in Cape Town, and the City Council (the last two of which somewhat overlapped); and it was only after the war, when M. Beaudouin returned to Cape Town as town planning adviser, that agreement was at last reached.

This book is the final report, designed to satisfy all parties. It gives an historical sketch of Cape Town, and is rich in diagrams, photographs and statistical tables.

A. T.

**Valuation for Compensation and Development Charges**, by Ronald Collier. (From Butterworth's Annotated legislation service.) 9½ in. xii + 351 pp. Butterworth. 1948. £1 5s.

This book is concerned with compensation and development charges under the Town and Country Planning Act, 1947. It is an exhaustive treatise dealing with value in relation to different classes of property, together with examples of the method of valuation.

Compensation under sundry other Acts is included, and the volume is one that will be of great assistance to those concerned with the valuation of land.

CHARLES WOODWARD [A]

**The Winchester Countryside**, by Alan Rannie, F.S.A. 7½ in. by 4½ in. 192 pp. + (11) pls. + endpaper maps. George Allen and Unwin. 1947. 8s. 6d.

Winchester is one of those delightful places from which those who enjoy walking, or a short car run combined with a walk, can reach the countryside in all directions in a



comparatively short space of time, and this book, which can easily be slipped into one's pocket, should do much to add to the pleasure of such occasions for those who do not know the interesting geological, historical, botanical and other facts associated with the various walks and special view points within walking distance of Winchester.

The information which the book contains has been put together in such a way that what one wants to know about any particular walk can be turned up easily.

The description of the country to be

seen from the railway is a commendable feature, and one cannot help hoping that it may be the means of the attention of the Planning Authorities being called to the fact that the appearance of buildings which are erected close to railway lines is just as important as elsewhere.

There are some green roads and footpaths which I know and which do not seem to be mentioned, but I feel it is an act of great discretion on the part of the author to have left them for the keenest walkers to discover for themselves.

A. LEONARD ROBERTS [F]

## Correspondence

### THE GOLDEN SECTION

Sir,—I should like to thank Mr. John C. Holmes for his further letter published in the March JOURNAL which, in spite of his admitted feelings of prejudice, is, I feel, a useful contribution to the discussion upon the above subject. There remain but few points which I should like to clear up before the discussion is brought to a close.

Mr. Holmes is not quite correct in thinking that I have not taken any steps to keep abreast of time in my mathematical reading. A very recent writer on the subject, Mr. F. W. Westaway, in his 'Craftsmanship in the Teaching of Elementary Mathematics' (1947 Edition) helps me to strengthen what I have already said. Mr. Westaway, after referring to the works of no less than three of the great mathematicians mentioned by Mr. Holmes, says under a heading 'Relative Values': 'In one respect at least mathematics seems to be a subject quite unlike other subjects. Its discoveries are permanent. The theorem of Pythagoras for instance is as valid today as 2,000 years ago. The majority of mathematical truths we now possess we owe to the intellectual toil of many centuries, and a student who desires to become a mathematician must go over most of the old ground before he can hope to embark on serious research. . . . Although mathematics does not lead to results which are absolutely certain, the results are incomparably more trustworthy than those of any other branch of science.'

So the quotation I gave in the February JOURNAL from a lexicographer in 1895 still holds good, even after taking the methods of New Logic into account. Indeed, Mr. Westaway further points out—in Chapter XLVII under a sub-heading 'Russell versus Poincaré'—that 'Henri Poincaré, who was described by Mr. Russell himself as "the most scientific man of his generation", flouted the logistic contention. He denied that logistic (mathematical logic) gave any sort of proof of infallibility, or that it is even mathematically fruitful.'

Be this as it may, my articles in ARCHITECTURAL DESIGN dealt with one aspect of proportion only, that is to say, The Practical Application of Mathematically Controlled Proportions by Means of Set Squares, and even that information had to be curtailed owing to paper shortage, as

was explained. But if sufficient paper had been available it was not my intention to include anything like syllogistic reasoning or other forms of logic or science to prove why R's scale of ratios should be used. Attractive as this aspect of the subject is, I feel it should form the basis of further consideration elsewhere when it has been adequately worked out, but in view of what Mr. Westaway has said about Poincaré's views of logistic it is a question whether it will even then achieve fruitful results. Nevertheless, I should be most interested to see such results obtained by means of an independent investigator, and I hope this suggestion can be followed up.

Finally, by the use of the word 'natural' in the expression 'natural scale'—relating to geometrical ratios—I think R. must have had in mind one or more of the following ideas: Pertaining to nature; produced or affected by nature; not artificial or far-fetched; given or conferred by nature; inborn. But this is supposition on my part because 'R' left no record of the sense in which he used the expression, and that is why I did not attempt to define it.—Yours faithfully,

A. LEONARD ROBERTS [F]  
Hon. Secretary, R.I.B.A.

### Editor's Note

*We have not published all the letters received on this subject, partly because of space restrictions and partly because some of them were not useful contributions to the discussion. In now closing this correspondence on the Golden Cut and Functional Proportion we may perhaps say that, in our experience, few subjects arouse more ferocious arguments among architects.*

*There are some who adopt the attitude of the old lady who on seeing a giraffe said: "There is no such animal". By such we have been abused for devoting JOURNAL space to the subject. On the other hand, there are many to whom it is a serious study and who have a firm belief in the value of design ratios and rules. Most appear to accept the middle view that there may be aspects of design on which we have not as yet full knowledge and who recollect that architectural philosophers, from Leonardo da Vinci to Le Corbusier, have investigated systems of proportion and that many architects whose work is admired for its good proportions (for example, Lutyens) have used some kind or kinds of proportion rule. The publication of a more fundamental study than has yet been made is needed to bring conviction—one way or the other.*

**In the Nature of Materials**, by Henry-Russell Hitchcock.

In the March issue (p. 236) the entry relating to this work gave only the New York publishers. It should be added (as recorded on the wrapper) that it is published in London by Paul Elek.

**Heating and Ventilating Engineering Data-book**, by Clifford Strock.

Distribution of this American book, mentioned in the January issue (p. 139), is handled in England by Machinery Publishing Co. Ltd., Brighton.

### MANNERISM IN ARCHITECTURE

Sir,—In the discussion following Professor Blunt's admirable exposition on Mannerism, I ventured to put the case for the existence of an English Mannerist School. The JOURNAL, however, did not report me fully, and I would like to restate my case for the consideration of members.

If one examines the work of the so-called English Baroque School—Wren, Vanbrugh, Hawksmore and Archer—in the light of Professor Blunt's exposition, it will be seen that the essential Baroque element of movement is much less apparent than the Mannerist elements.

An example of such English Mannerist architecture is Nicholas Hawksmore's St. Mary Woolnoth—comparable, in my opinion, with Michelangelo's Laurenziana Library. We see inside St. Mary's an almost insane inversion of detail, columns tapering towards the bottom and capitals suspended with no columns to support them. From the outside the body of the church appears to be moving towards the West, pushing aside the remnants of what should have been a portico, and the fantastic windowless façade to the North breaks every rule of the classical grammar and changes scale three times. Yet all this is done with an assurance that makes one certain that here we have no 'naive' Mannerist.

The other members of the English Baroque School are similarly more Mannerist than Baroque, but Wren occasionally realizes the completely classical (St. Paul's), Vanbrugh has his own brand of marching mediæval Mannerism (Blenheim), and Archer nearly achieves the complete organization in movement which characterizes the true Baroque (St. Paul's, Deptford).

But, have we not in Nicholas Hawksmore, whose work is completely free from Classical or Baroque tendencies, a Mannerist of such quality that even Italy will find it hard to produce a better?—Yours faithfully,

PETER D. SMITHSON [A]

### ADVERTISEMENTS IN THE JOURNAL

*We have received an anonymous letter on the above subject from 'Associate'. The letter raises several interesting points on which there could be a useful discussion. We do not, however, publish letters signed with a pseudonym except where, as in this case, there is a valid reason for anonymity and then only when the name of the writer is known to us. If, therefore, the writer of this letter will let us know his identity we will publish the letter above his pseudonym.—Editor.*

# Notes and Notices

## NOTICES

### The One Hundred and Eleventh Annual General Meeting, Tuesday 3 May 1949

The One Hundred and Eleventh Annual General Meeting will be held on Tuesday 3 May 1949, after the Special General Meeting on that day, for the following purposes:

To read the minutes of the Eighth General Meeting held on 5 April 1949; formally to admit new members attending for the first time since their election.

To receive the Annual Report of the Council and Committees for the official year 1948-49.

(Copies of the Annual Report will be sent to members in April.)

*It will facilitate answers to questions if members will give the Secretary prior notice of any questions which they may wish to ask. Notices should be in the Secretary's hands not later than 23 April. This will not preclude the right of members to ask questions on the Annual Report without having given prior notice.*

To nominate candidates (two members) for the office of Hon. Auditors for the ensuing year.

To receive the list of attendances at the Council during the Session.

(Light refreshments will be provided before the meeting.)

### Tenth General Meeting, Tuesday 24 May 1949

The Tenth General Meeting of the Session 1948-49 will be held on Tuesday, 24 May 1949, after the Special General Meeting on that day, for the following purposes:

To read the minutes of the One Hundred and Eleventh Annual General Meeting held on 3 May 1949; formally to admit new members attending for the first time since their election.

Professor Ian Bowen to read a paper on 'The Economics of Building Operations and the Architect.'

(Light refreshments will be provided before the meeting.)

### Amendment to Bye-law 62: Special General Meetings, 3 and 24 May 1949

A Special General Meeting will be held on Tuesday 3 May 1949, at 6 p.m.—prior to the Annual General Meeting—for the following purposes:

To consider the following resolutions put forward by the Council:

(1) That the following Bye-law 62 be *deleted*:  
62. In the case of the Royal Gold Medal the Council shall announce to the members at a General Meeting, at least four weeks before the Meeting of the Council at which the election is to be made, the name of the person they propose to submit to His Majesty as a fit recipient of that honour. The award shall be by Resolution of the Council.

and the following Bye-law *substituted*:  
62. The election of the person proposed for submission to His Majesty as a fit recipient of the Royal Gold Medal shall be by Resolution of the Council.

(2) That the necessary steps be taken to obtain the sanction of the Privy Council to the amendments to the Bye-laws to give effect to the foregoing resolution.

In the event of the above resolutions being passed, a Special General Meeting will be held on Tuesday 24 May 1949, at 6 p.m., prior to the Ordinary General Meeting on that date, for the purpose of confirming those resolutions in accordance with the provisions of Clause 33 of the Charter of 1887.

### R.I.B.A. Kalendar

The next issue of the Kalendar will be published in October and members and Students wishing

to notify new addresses for publication should do so as soon as possible. In order to conform to the printer's time table, changes of address received after 31 May (overseas members and Students 30 June) can not be included.

Owing to paper restrictions it will still be necessary to restrict members and students to one address each.

### British Architects Conference, Nottingham, 29 June-2 July 1949

All members and Students of the R.I.B.A. and the Allied and Associated Societies are cordially invited to attend the Conference. Full particulars of the programme are enclosed with this issue of the JOURNAL.

Members of the R.I.B.A. and the Allied Societies who are officials of local authorities will be welcomed as delegates to the Conference.

Members who propose to attend should complete the application form attached to the programme as soon as possible, but in any case not later than 4 June.

A list of hotels is given in the Conference programme and members are advised to reserve accommodation at the earliest possible moment to avoid the risk of disappointment.

### Provision of Adequate Time for the Preparation of Tenders

Some firms of builders have recently instanced cases of contracts amounting to several thousands of pounds, in which only a short time had been allotted for the preparation of the respective tenders. It was pointed out that the necessity of obtaining quotations from firms of sub-contractors before sending in his tender had rendered it impossible for the builder concerned to comply in the specified time, as delays were unavoidable owing to the shortage of staff in the offices of both builders and sub-contractors. In view of the prevailing conditions the Practice Committee suggest that at least double the time should be allowed for the preparation of tenders than was allowed prior to the war.

The same observations apply where tenders are invited by members from specialist firms, one of whom may become a nominated sub-contractor.

## COMPETITIONS

### Proposed Fleet Air Arm Memorial of the 1939-45 War at Lee-on-Solent, Hampshire

The Imperial War Graves Commission invite architects who are ex-serving full time members of His Majesty's Forces to submit designs in competition for the Fleet Air Arm Memorial of the 1939-45 War, which they propose to erect on a site on the sea front at Lee-on-Solent.

Assessor: Mr. Edward Maufe, R.A. [F].  
Premiums: £100, £60 and £30.

Last day for submitting designs: 20 May 1949.

Conditions may be obtained from The Secretary, Imperial War Graves Commission, 32 Grosvenor Gardens, S.W.1. The deposit is £1. Applications for the Conditions must state:  
(a) Their architect's registration number.  
(b) The branch of H.M. Forces in which they served.

### COMPETITION RESULT

#### Proposed New Secondary Modern School, Worcester

1. E. B. Musman, B.A. [F].  
2. P. Dunham and McFarlane Widdup [F/A].

3. W. A. Horne and D. H. Ramsbottom [A].

Commended: N. T. Rider [A], David du R. Aberdeen, B.A. [F], D. Rogers Stark [A],

H. J. E. Pyne [A], D. C. Glyn Davies [A].

## BOARD OF ARCHITECTURAL EDUCATION

### R.I.B.A. Prizes and Studentships: The Ashpitel Prize, 1948

The Ashpitel Prize, which is a prize of books to the value of £20 awarded to the candidate who, taking the Final Examination to qualify as an Associate, shall most highly distinguish himself among the candidates in the Final Examinations of the year, has been awarded to Mr. Cyril George Andrews [Student].

### British School at Rome

The Faculty of Architecture of the British School at Rome announce that the following candidates have been admitted to the final stage of the competition for the Rome Scholarship in Architecture of 1949: G. P. Dawson (Manchester University School of Architecture), W. A. Gibbon, B.A. (Manchester University School of Architecture), H. N. Mason, B.Arch. (Liverpool University School of Architecture), I. S. Melville (Liverpool University School of Architecture), G. H. Holroyd (Sheffield University Department of Architecture), H. A. Wheeler [A] (Glasgow School of Architecture).

The Rome Scholarship is at present of the value of £375 a year, and is ordinarily tenable for two years at the British School at Rome. It is provided by a grant from the Royal Institute of British Architects.

### R.I.B.A. Final Examination

Mr. Francis J. Tingey [Student], Barking, Essex, has been awarded *Distinction in Thesis*.

## ALLIED SOCIETIES

### Changes of Officers and Addresses

*South Wales Institute of Architects—Western Branch.* Chairman, Mr. C. G. Tagholm [A], 47 Mansel Street, Swansea (as from 1 July 1949).  
*Central (Cardiff) Branch.* Mr. C. L. Matthew [A], The Technical College, Cardiff (as from 1 July 1949).

*Blackpool and Fylde Architectural Society.* President, Mr. C. H. MacKeith [F], 97 Church Street, Blackpool. Secretary, Mr. C. S. Jordan, 23a Clifton Street, Blackpool.

*Northern Architectural Association—Tees-Side Branch.* Hon. Secretary, Miss Mabel Thompson (Student, R.I.B.A.), 28 The Square, Stockton-on-Tees.

*Institute of Architects of Malaya.* President Mr. F. G. London, c/o Messrs. Swan and McLaren, Singapore. Hon. Secretary, Mr. Reginald Eyre of Messrs. Palmer and Turner, Singapore.  
*Kuala Lumpur Branch.* Chairman Mr. H. C. Upton [A], Hon. Secretary and Treasurer, Mr. V. S. van Langenberg [L].

*Devon and Cornwall Architectural Society—Exeter Branch.* Chairman, Mr. H. M. R. Drury [F], The Church House, The Close, Exeter.

*Royal Architectural Institute of Canada—Architect's Association of New Brunswick.* President, Mr. H. S. Brennan, 42 Princess Street, St. John, New Brunswick.

*Manitoba Association of Architects.* President, Mr. Eric W. Thrift, 605 Time Building, Winnipeg, Manitoba.

*Essex, Cambridge and Hertfordshire Society of Architects—Cambridge Chapter.* Chairman, Mr. L. F. J. Gomme [L], 9 Cranmer Road, Cambridge. Hon. Secretary, Mr. W. Lambert Lee [A], c/o University of Cambridge, Department of Estate Management, 74 Trumpington Street, Cambridge.

### Glasgow Institute of Architects: Glasgow Chapter Dinner-Dance

The Glasgow Chapter made an experimental return to the pre-war social evening; it was agreed to have a Dinner-Dance, which would be quite informal in so far that no outside official guests would be asked and that speeches would be cut to a minimum. Mr. George Laird was appointed Chairman of a sub-committee, and the event took place in the Grosvenor Restaurant on Monday 14 February, and was attended by 300 architects and their friends.

The President R.I.B.A., Mr. Michael T. Waterhouse, M.C., and Mrs. Waterhouse were present, and this honour was greatly appreciated; at the same time their genial company and the President's excellent speech—suited to the occasion—went a long way to make the evening a complete success.

Mr. J. Steel-Maitland presided over a cheerful gathering, from whom the only complaint seemed to be that midnight swooped down so suddenly. In view of the social and financial success of this function it is confidently hoped that a similar Dinner-Dance will be held next year.

### South Wales Institute of Architects: Annual Dinner 1949

The Annual Dinner and Dance held at the Park Hotel, Cardiff, on Thursday 10 March was a pleasant and successful function. A large number of guests and members attended. Unfortunately, the President R.I.B.A. was unable to be present, but Mr. Arthur Kenyon, Vice-President R.I.B.A., who was accompanied by Mrs. Kenyon, deputized.

Another welcome guest was Mr. Everard Haynes, Secretary of the Board of Architectural Education, but members missed Mr. C. D. Spragg, who has so frequently attended these functions in the past. The Chair was taken by the President of the South Wales Institute of Architects, Mr. Gordon Griffiths.

Councillor Dr. Walker, Deputy Lord Mayor of Cardiff, proposed the toast of 'The Royal Institute of British Architects and the South Wales Institute of Architects', and this was responded to by Mr. Arthur Kenyon and Mr. Gordon Griffiths. The toast of 'The Guests' was proposed by Sir Percy Thomas and Dr. Lorwerth Peate responded.

### Bristol Society of Architects' Annual Dinner

'There is some feeling that we are losing the beauty of our houses because we are unable to build them in the orthodox manner,' said the Lord Mayor of Bristol (Alderman C. R. Gill, M.B.E.), speaking at the annual dinner of the Bristol Society of Architects at the Berkeley Café, Bristol, on 15 March. He believed the appearance of the orthodox brick and stone houses could not be beaten, but unorthodox buildings, perhaps not so pleasant to the eye, must be adopted if the housing problems of our age were to be solved. The Lord Mayor was replying to the toast of 'The City and County of Bristol' proposed by Mr. A. Crozier Cole [A].

Mr. L. Wright [A] proposed the toast 'Architecture and the Royal Institute of British Architects', and the President, R.I.B.A., Mr. Michael T. Waterhouse, M.C., replied. The President said: 'I have spent a most enjoyable afternoon going round your school of architecture at the West of England Academy, and I was extremely impressed by the work done there.'

### Hampshire and I.O.W. Architectural Association: Annual Dinner at Southampton

Some two hundred members and guests attended the eleventh annual dinner of the above Association at the Polygon Hotel, Southampton, on 24 March. The principal guests were Mr. Michael Waterhouse, M.C., President

R.I.B.A. and Mrs. Waterhouse, the Mayor of Southampton (Councillor F. Dibben) and Mrs. Dibben, the Mayor of Winchester (Councillor Mrs. G. Crompton, M.B.E., J.P.) and Mr. Crompton, Mr. A. L. Roberts [F] (Hon. Secretary R.I.B.A.) and Mrs. Roberts, Mr. C. D. Spragg, C.B.E., Mr. H. F. Hurcombe [F], President of the Berks, Bucks and Oxon Architectural Association and Mrs. Hurcombe, and Mr. R. R. H. Meggeson, Town Clerk of Southampton.

Mr. Ernest Bird [F], President of the Hampshire and I.O.W. Architectural Association, proposed a toast to the Local Government Authorities. The toast of the R.I.B.A. was proposed by Mr. Meggeson and the President R.I.B.A. responded. Mr. Waterhouse said the Institute had a tremendous amount of work before it. Much depended on materials and the men to do the job and also the will to work of all engaged. The R.I.B.A. would seek to give the best possible architecture to the nation's new building programme.

Mr. H. S. Sawyer, M.C. [F] proposed the toast 'Our Guests' and this was responded to by Mr. F. L. Freeman, Southampton's Chief Education Officer, who said that architecture, like education, was a mirror of the times, reflecting current opinion, and aimed at making the world a better place to live in.

### Birmingham and Five Counties Architectural Association: Coventry Society of Architects Annual Dinner

The Annual Dinner of the above Society was held at the Manor House Hotel, Leamington Spa, on Friday 1 April 1949. Among the guests present were Mr. A. B. Knapp-Fisher [F], Vice-President R.I.B.A., The Right Worshipful the Mayor of Coventry, Councillor W. H. Malcolm J.P., Mr. F. J. Osborne, M.C., President of the Birmingham and Five Counties Architectural Association, and Mr. T. J. Bates, Chairman of the Coventry and District Association of Building Trades Employers.

Mr. A. H. Gardner [F], Chairman of the Coventry Society of Architects and Vice-President of the Birmingham and Five Counties Architectural Association proposed the toast of the R.I.B.A., in which he referred to the splendid work the Institute had done in the last twelve months. Replying to the toast, Mr. Knapp-Fisher said that architects' difficulties today presented at once a challenge and an opportunity; a challenge because the whole structure of the profession was undergoing changes, and opportunity because the next few years would witness an immense amount of building for everyone. He said he looked forward to the time when the younger men of the profession would enjoy a fruitful time. There was a new renaissance; every town and city of England was going to be rebuilt and many new towns were to be constructed.

Mr. C. F. Redgrave [A] proposed the toast 'The City of Coventry,' and the Mayor in reply said everything was being done to try to make Coventry one of the finest cities in the country; although many of them might not live to see it, he was sure their children would be proud of what they were now planning to do. The Mayor said if the city of Coventry could have the same amenities as other places from a residential point of view, it would become one of the most prosperous towns in the kingdom.

Mr. S. J. Oldham [A] proposed the toast of the visitors, and Mr. T. J. Bates, Chairman of the Coventry and District Association of Building Trades Employers, in reply, referred to the fifteen thousand people waiting for homes in the City, said the only way the problem would be solved was for the Government to allow private enterprise to build on the same

footing and in the same quantities as municipal housing, and added that in Coventry there was an excellent liaison between builders and architect.

## GENERAL NOTES

### The Annual Report 1948-49

The printers have instructions to post these to all members on Tuesday 19 April. If any member residing in the United Kingdom has not received his copy by Friday 22 April, it will be appreciated if the Secretary, R.I.B.A., be notified.

### Industrial Architecture: Illustration of model of new colliery at Rothes for National Coal Board

It is regretted that the caption to the illustration on page 205 of the March 1949 JOURNAL of the model of the new colliery now under construction at Rothes, Fife, for the National Coal Board did not include the names of the Board's architects. They are: C. G. Kemp [F], Chief Architect, J. A. Dempster [F], A. J. Saise [A], D. D. Jack [F], F. G. Frizzell [A], O. H. Parry, A.R.I.C.S., J. H. Bourne [A], H. Smith [L], W. A. Woodland [F], W. M. Traylor [F].

### Member of the Royal Architectural Institute of Canada elected First President of Association of Canadian Industrial Designers

The Association of Canadian Industrial Designers, the Council of which was listed in the Canadian Almanac & Directory for 1949, has elected its first officers. These include: *Honorary President*, Rt. Hon. Vincent Massey, C.H., P.C. *Hon. Vice-Presidents*, Professor H. H. Madill, O.B.E., F.R.A.I., and Professor E. A. Allcutt, M.E., A.M.I.M.E. (*Founder*) *President*, G. Englesmith, M.R.A.I.C., M.S.I.A. [A]. *Vice-President*, J. B. Parkin, M.R.A.I.C. [A]. *Secretary-Treasurer*, Watson Balharrie, M.R.A.I.C.

The address of the A.C.I.D. Headquarters is 55 Metcalfe Street, Ottawa, Canada.

The inaugural meeting took place on 1 December 1948 in the Studio Building in Toronto. Architecturally, this building might be compared with the art school in Glasgow by Charles Rennie Mackintosh. It was also the home of the Group of Seven, the Canadian 'Impressionists'. The founder—first president of the Association—and his vice-president, are both Associates R.I.B.A. Recently the President, Mr. G. Englesmith, was made a Member of the Society of Industrial Artists in Great Britain.

### Leverhulme Research Fellowships, 1948

Mr. R. L. Davies [A], Branch Architect (Research and Development), British Railways, has been awarded a Research Grant, tenable for a period up to two years, by the Trustees of the Leverhulme Research Fellowships for 'Design of building elements in the light of recent research'.

### School of Planning and Research for Regional Development

Applications are now being considered for the new Diploma Course: Sessions 1949-50 and 1950-51. All communications should be addressed to the Secretary, School of Planning, 34 Gordon Square, London, W.C.1. (EUSon 2158.)

### New Telephone Numbers

The R.I.B.A. telephone exchange number will be changed in the near future to LANgham 5721-7 instead of WELbeck 5721-7. The date when this takes place will be notified in a later JOURNAL.

The Festival of Britain 1951 have changed the telephone number from Temple Bar 1951 to Waterloo 1951. The address remains 2 Savoy Court, W.C.2.



# Obituaries

**Sir Charles Nicholson, Bt., M.A. [F]**, died on 4 March at the age of 81.

His work was mainly ecclesiastical and he had an immense knowledge of mediæval architecture and traditional building which he used expertly but modestly in the repair of many cathedrals and churches. He was the eldest son of Sir Charles Nicholson, first baronet, formerly Speaker of the House of Assembly, Sydney, and Chancellor of Sydney University, and succeeded his father to the baronetcy in 1903. Educated at Rugby and New College, Oxford, he was articled to J. D. Sedding. Afterwards Sir Charles Nicholson worked with Henry Wilson, Sedding's pupil, until his death and then in 1893 set up in practice for himself in London; this was the year in which he won the Tite Prize of the R.I.B.A.

During the greater part of his practice, until 1914, he worked in partnership with Hubert Christian Corlette, under the style of Nicholson and Corlette. He entered into partnership with Mr. Corlette in 1895 and their work included new churches, colleges and schools in various parts of the country—Cockington, Westcliff, Plymouth, Yelverton, Epsom, Grimsby, Halifax. More important works carried out were the Government buildings at Kingston, Jamaica, the Chapel of the Holy Spirit in Belfast Cathedral, and the new reredos and canopy in Carlisle Cathedral. When, in 1927, the See of Portsmouth was founded, the task of converting the parish church of St. Thomas a Becket into a cathedral was entrusted to Sir Charles Nicholson and Mr. T. J. Rushton [F]. Mr. Rushton now continues the practice of Nicholson and Rushton.

Sir Charles was consulting architect to six cathedrals—Wells, Lichfield, Portsmouth, Llandaff, Sheffield and Belfast; diocesan architect to Wakefield, Winchester, Portsmouth and Chelmsford. He was honorary secretary and a vice-president of the Architects' Benevolent Society, taking a leading part in its work from the time of joining in 1906.

He was married twice. His first wife died in 1927 and in 1931 he married Miss Catherine Maud Warren, who survives him. The baronetcy descends to his only son, John Charles Nicholson, who was born in 1904 and is in practice as a consulting surgeon in London.

**Mr. H. S. Goodhart-Rendel, M.A. [F]** has sent the following appreciation:

'Sir Charles Nicholson died on the 4 March last, aged 81 as a man, but as an artist still young. To the end his skill and zest were unabated. A list of ecclesiastical designs that he executed between 1895 and 1932 contained the names of forty churches altogether new, together with those of one hundred and two other churches and of sixteen cathedrals in which more or less of his work was to be seen. Of non-ecclesiastical buildings he had designed fewer, but they included some of considerable size and importance. In the sixteen years that have passed since this list was compiled, his production showed little decrease. None of his designs was careless or hastily made; none could have been invented by anyone but himself. All of them show the originality and resourcefulness peculiar to his mind and temperament.

'How does it come that an architect who has left so large a mark upon the face of England should not have been very widely known outside the circle of those who, having admired work he had done for others, sought him out to

work for them also? I think the answer lies in his complete lack of egotism, and in the modesty of his ambition. To him work was its own reward, and the praise it might earn was a matter of indifference.

'He was above all a constructor, a contriver. He loved the stuff of building, whether the homely rubble and timber of the hamlet chapel, or the reinforced concrete with which he, so precociously, rebuilt the town of Kingston in Jamaica. The hamlet chapel had to be cheap (he built a charming one in 1907 for less than £600), and Kingston, having just been destroyed by an earthquake, must—if possible—not be so destroyed again. The decent frugality of his chapel, and the ingeniously flexible construction of his Kingston buildings, were the solutions of problems equally to his taste. In a church built by him quite recently, columns and other classical paraphernalia of a large 18th century building, recently destroyed in the neighbourhood, have been embodied in a way that recalls the re-use by early Christians of the fragments of Roman antiquity. He was a master of vaulting, using it with skill and economy on many occasions on which more timid architects would shrink from it as unduly difficult and expensive. The principal rooms on the ground floor of the large house, Burton Manor, that he built in the Wirral of Cheshire are beautifully covered by light concrete vaults having, I believe, no metallic reinforcement; and more striking examples of his constructive skill in such matters can be seen at Portsmouth cathedral, in Epsom parish church, and in his brilliant recasting of the mid-Victorian chapel at Clifton College.

'He had a horror of what he called "fancy planning," but, when necessity arose, could plan with extraordinary ingenuity. I remember a design of his for a V-shaped church on a tapering urban site in which two naves, whose axes formed an acute angle, converged upon a chancel in what seemed to be the most natural way in the world. In the recasting of Clifton Chapel, already mentioned, he realized in some degree the notion of a large hexagonal central space that had made his design in the final stage of the Liverpool Cathedral competition so exciting and remarkable.

'The architectural idiom in which Sir Charles Nicholson's conceptions found their natural expression was predominantly Gothic, a development, but never an imitation, of what was our national style before the international upheaval of the Renaissance. His choice of forms was, no doubt, largely the result of his antecedents; he was a pupil of Sedding, and heir to Sedding's rich architectural experience. Form without varied colour was antipathetic to him; even in his least and humblest work there is always to be seen some painted decoration.

'He drew boldly and beautifully with a facility that can hardly be imagined by those who have never watched him at work. The facility of his invention was no less extraordinary, and he delighted in the rapid improvisation upon paper of great architectural compositions, not visionary and fantastic, but so realistic and reasonable as to be easily mistakable for records of buildings actually existing. Other lightning improvisations would take the form of most amusing architectural caricatures.

'His character as a man endeared him to all with whom he came in contact, and none were more his friends than the building tradesmen and labourers whose work he directed. A true Christian, he was a brother to all men of good will, and to be in his company was not only a delight but an inspiration. Until his death he never flagged in his energy as Hon. Secretary of the Architects' Benevolent Society, the

meetings of which kept him in touch with old friends and new at the Royal Institute of British Architects.'

**Alfred Hale [F]**, of Birmingham, died on 7 November 1948. Mr. John B. Surman [F], of Edgbaston, Birmingham, has sent the following appreciation:

'With the passing of Alfred Hale the architectural profession of the Midlands has suffered a very serious loss, for, by his personality, he had created a position of high respect and affection amongst all its branches.

'Alfred Hale was the eldest son of the late William Hale, an architect of considerable distinction, who practised in Birmingham, and Alfred Hale received his early training in his father's office in Birmingham. After completing his articles and training he went to London and met the late Charles Edward Bateman, who was also working there in Norman Shaw's office, and the association of these two junior assistants developed into a friendship and close co-operation which lasted for over fifty years. On returning to Birmingham, Hale eventually became a partner in the firm of Bateman and Bateman, and was chiefly responsible for the large quantity of hospital work carried out by that firm. Hospitals executed included work at Evesham, Moreton-in-the-Marsh, the Cripples' Hospital, Birmingham, and at many other places. Hale and Bateman were also associated in work for the Bromsgrove School and the new council offices at Bromsgrove.

'In 1904, in conjunction with Charles E. Bateman, he won the competition for High Wycombe Town Hall, and in 1905 the Free Library at Northfield. Hale was one of the oldest and, I believe, original members of the Birmingham Architectural Association (as it was then called), and during his association he served on every committee, took every office, and became President for the years 1935-36 and 1936-37.

'His was a quiet and gentle disposition, which made him much beloved by both the young and old members of the profession, for which he was always full of enthusiasm for its well-being. He was deeply interested in every one of its activities and all its members. He gave much time and thought to the improvement of the Association's library, impressing on all the need for keeping this up-to-date, and so making it a really useful and effective collection of works which would be helpful to the younger members of the profession. He regularly attended each monthly meeting, and despite several severe illnesses during the last few years of his life, made it his duty to attend almost up to the end.

'Alfred Hale was a man of strong, though gentle, character, wise in counsel, cheerful and helpful always to men seeking his advice on professional matters, and was deeply respected and admired by a host of our Association members, and his presence will be sadly missed by all.'

**Francis Henry Allen [F]**, senior partner in the firm of F. H. Allen and Son, of Northampton, died at his home, 'Southlands', Dallington, on 17 February, aged 73, after a short illness.

Mr. Allen first commenced practice in Northampton in 1910, having been articled to the late Mr. John Ingman, whose assistant he became. He was elected Associate in 1900 and Fellow in 1931.

The following are his principal architectural works: J. Sears and Co. (True-Form Boot Co. Ltd.), Factory and Offices; C. and E. Lewis Boot Factory and Offices, and many other alterations to boot and shoe factories and leather works in Northampton; Doddridge Memorial Church Schools and Park Avenue

Baptist Church Schools, Northampton; Clarke and Sherwell Ltd., Printing Works, Northampton; Manfield Orthopaedic Hospital, Northampton; Bethany Homestead, Northampton; rebuilding the Creton Sanatorium, Northampton; a house at Golders Green for Sir Ambrose Woodall (now Lord Uvedale); private houses in Northampton and district; Northampton Town and County Benefit Building Society Head Office, and Branch offices and a flax factory at Billing, Northants (in conjunction with his son, Mr. F. B. Allen [L]). In the realm of town planning Mr. Allen was responsible for the completion of the Phippsville Estate and the Headlands Estate, Northampton.

In 1931 he was President of the Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects, and a member of the Association's Council until his death. The wife of Mr. Allen died five years ago, and

he is survived by three sons and two daughters, two of whom, Mr. F. Bernard Allen [L] and Miss E. Beryl Allen, are in the practice at 24 Albion Place, Northampton.

**Edward Henry Waugh** [4], of Johannesburg, died suddenly on 16 September 1948.

He was born in Melbourne, his father being first President of Wesley College, one of the four great public schools of Victoria, Australia. Educated there, Mr. Waugh commenced his professional career in the surveying department of the Victorian Railways, and then served his articles in the offices of a Victorian architect, later being engaged in architectural work for various firms. Following the serious commercial crisis in Australia, which came after the land boom and bank crash of 1898, Mr. Waugh went to South Africa and joined the engineering department of the Cape Town Corporation.

Anxious to pursue his studies, he went to King's College, London, returning in 1902 to Johannesburg to an appointment as chief of the architectural and building survey branch of the Town Engineer's department of the Johannesburg Municipal Council. In addition to this work he was appointed in 1907 Town Valuer, by which title he was widely known throughout the whole of the Witwatersrand.

Mr. Waugh was a Fellow of the Royal Sanitary Institute, and contributed numerous articles to the technical press in South Africa as well as overseas, and was experienced in cold storage construction. Before he retired in 1932 he had been City Engineer of Johannesburg for about five years.

He leaves a widow and a son, who is an Associate, R.I.B.A., and a professor of architecture at North Carolina State College, School of Architecture and Landscape Design, U.S.A.

## Membership Lists

### ELECTION: 8 MARCH 1949

The following candidates for membership were elected on 8 March 1949:

#### AS FELLOWS (3)

**Hopkinson: Albert Cyril, M.A., A.M.T.P.I.** [A 1934].

**Smith: Sydney Walter John, A.M.T.P.I.** [A 1938].

**Watt: John** [A 1929] Preston.

#### AS ASSOCIATES (43)

**Bailey: Barbara Mary (Miss), Dip.Arch.** (Mancr.), Eccles.

**Bailey: David, B.Arch. (Hons.) (Durham),** Liverpool.

**Bland: Constance Mary (Miss), B.Arch.** (L'pool), Selby.

**Bridges: Frederick Peter, B.Arch. (Sydney),** Sydney, Australia.

**Brock: Leslie Thomas, Melbourne, Australia.**

**Broughton: Ann Phyllis (Miss).**

**Buckler: Derek William, B.A. (Hons. Arch.)** (Mancr.), Prestwich.

**Campbell: James, Dip.Arch. (Dundee),** Gloucester.

**Caulfield: Roy, Solihull.**

**Chalton: John Kenneth, Birmingham.**

**Coxon: Rowland Francis, Loughton.**

**Cumming: Archibald, B.Sc., Glasgow.**

**de Soysa: Evan Lancelot Frederick, B.Arch.** (Liverpool), Colombo, Ceylon.

**Ferrie: James Westwater, Singapore.**

**Fisher: John, Nottingham.**

**Fogarty: John Owen.**

**Gardiner: Stephen.**

**Goodman: David Archibald Samaria, Nott-**

**ingham.**

**Hye: Abdur Rahman, Dip.Arch. (Edin.), Edin-**

**burgh.**

**Korner: Renate (Miss), B.Arch. (Lond.).**

**Low: Nevil, B.Arch. (Cape Town), Cape Town,**

**South Africa.**

**Love: Allan Rynhart, Melbourne, Australia.**

**Martin: Jennifer Hirst (Miss), Sutton.**

**Mason: Margaret Joan Elfreda (Miss), Hove.**

**Puri: Jagdash Chand, Dip.Arch. (Edin.), Edin-**

**burgh.**

**Roscoe-Hudson: Alan, Florida North, Trans-**

**vaal, South Africa.**

**Shaw: Pamela Jean (Miss), B.Arch. (Hons.),**

**Huddersfield.**

**Shaw: Robert Sydney, Dip.Arch. (Dist.)**

**(L'pool), Liverpool.**

**Shorten: Derrick Richard, B.Arch. (Hons.)**

**(L'pool), Boxmoor.**

**Sterne: Frederick Fritz, South Yarra, Victoria,**

**Australia.**

**Thorpe: Frederick William, Nottingham.**

**Turok: Hillel, Dip.Arch. (Cape Town), Cape**

**Town, South Africa.**

**Walker: Arthur Ronald, Dip.Arch. (Dist.)**

**(Durham), Wakefield.**

**Wessels: Theuns Jacobus, B.Arch. (Rand),**

**Orange Free State, South Africa.**

**West: Lindsay Brewis, B.Arch. (Hons.) (Dur-**

**ham), South Shields.**

**Willsford: Philip Christian, Sydney, Australia.**

#### AS LICENTIATES (12)

**Birch: Percy Cyril, Outwood, Surrey.**

**Busby: John Chambers, Glasgow.**

**de Lara: Louis George Charles, D.F.M., Dor-**

**chester.**

**Evans: Richard Charles.**

**McKinney: James, Glasgow.**

**Marsh: Kenneth James Jackman, Bourne-**

**mouth.**

**Read: Charles Alfred James, Chorleywood.**

**Reiss-Smith: Mervyn Kenneth, Plymouth.**

**Riss: Egon.**

**Ruhemann: Frederick Abraham.**

**Scott: Ernest, Bury St. Edmunds.**

**Tranter: Harold Leonard Egerton, Melbourne,**

**Australia.**

### ELECTION: 3 MAY 1949

An election of candidates for membership will take place on 3 May 1949. The names and addresses of the candidates with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Bye-laws, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Monday 2 May 1949.

The names following the applicant's address are those of his proposers.

#### AS HON. CORRESPONDING MEMBERS (2)

**Roberto: Marcelo, 1267-7° Avenida Copaca-**

**bana, Rio de Janeiro, Brazil. Proposed by the**

**Council.**

**Wurster: William Wilson, Dean of the School of**

**Architecture and Planning, Massachusetts In-**

**stitute of Technology; 14 Farwell Place, Cam-**

**bridge 38, Massachusetts.**

**stitute of Technology; 14 Farwell Place, Cam-**

**bridge 38, Massachusetts.**

#### AS FELLOWS (8)

**Banks: Robert Louis, M.C. [A 1935], 35 Gor-**

**dons Square, W.C.1; The Cottage, Batchworth**

**Hill, Rickmansworth, Herts. Frederick Gib-**

**berd, Miss Jane Drew, G. A. Jellicoe.**

**Bunce: Henry Edgar, M.C. [A 1911], 25 Sea**

**Road, Bexhill-on-Sea, Sussex; Far End, Ash-**

**down Road, Bexhill-on-Sea. S. Pierce, Cecil**

**Burns, C. H. Strange.**

**Casson: Hugh Maxwell, M.A. [A 1934], 110**

**Old Brompton Road, S.W.7; 18 Sheffield Ter-**

**race, W.8. R. E. Enthoven, Howard Robertson,**

**A. M. Chitty.**

**Fairweather: James McDonald [A 1932],**

**Ministry of Health, Whitehall, S.W.1; 43**

**Huntley Road, Ecclesall, Sheffield, 11. W. G.**

**Davies, J. H. Forshaw, Prof. Stephen Welsh.**

**Gedge: John Victor (Major), T.D. [A 1933],**

**11a Kimbolton Avenue, Bedford. Prof. A. E.**

**Richardson, Prof. H. O. Corfiato, G. P. Allen.**

**Pester: George Samuel [A 1941], Assistant**

**County Architect, County Offices, Preston,**

**Lancs. C. G. Stillman, W. T. Curtis, G. N.**

**Hill.**

**Tagholm: Christopher Glyn [A 1939], 47 Man-**

**sel Street, Swansea; 1 Eden Avenue, Uplands,**

**Swansea. J. H. Jones, O. S. Portsmouth, E. E.**

**Morgan,**

and the following Licentiate who is qualified

under the provisions of Section IV, Clause 4

(c) (ii), of the Supplemental Charter of 1925:

**Parsons: Harold Richard, 2 Dover Street,**

**Coventry; 620 Church Road, Yardley, Birm-**

**ingham, 25. F. J. Osborne, T. S. Wood, E. F.**

**Reynolds.**

**AS ASSOCIATES (151)**

The name of a school, or schools, after a

candidate's name indicates the passing of a

recognized course.

**Alcock: Harold [Special Final], 208 Castle**

**Road, Bedford. C. W. Box, S. C. Jury, Major**

**B. C. Deacon.**

**Alexander: William [L] [Special Final], 39**

**Wheathouse Road, Birkby, Huddersfield. H. W.**

**Burchett, R. T. Grummant, Norman Keep.**

**Alton: Jack Preston [Final], 302 Edward Road,**

**Edgbaston, Birmingham, 5. Edward Playne,**

**C. M. O. Scott, Joseph Addison.**

**Andrews: Cyril George [Final], Galway Park,**

**Dundonald, Belfast, N. Ireland. J. H. Steven-**

**son, W. J. H. Stevenson, R. H. Gibson.**

**Arnold: Peter Josling** [Special Final], 'Cock-shoot,' Blundeston, nr. Lowestoft. E. W. B. Scott, T. G. Scott, A. G. Berry.

**Ashwell: John Nigel** (Nottingham Sch. of Arch.), 47 Musters Road, West Bridgford, Nottingham. R. W. Schofield, A. E. Eberlin, T. C. Howitt.

**Austin: Douglas Harold** [Final], 8 Boston House, Taunton Place, N.W.1. G. S. Harrison, R. J. Hurst, and applying for nomination by the Council under Bye-law 3 (d).

**Backhouse: Edmund James** [Special Final], 84 The Causeway, Carshalton, Surrey. J. R. Hill, C. W. Box, P. M. Andrews.

**Badger: Reginald** [Special Final], 4 Trinity Place, Stratford-upon-Avon. F. W. B. Yorke, C. H. Elkins, Hurley Robinson.

**Bailey: Duncan** [Final], 144 Whitchurch Lane, Edgware, Middx. W. A. Rutter, C. W. Box, A. W. Reading.

**Barker: Alfred James** [Special Final], 50 Heslington Lane, Fulford, York. L. S. Stanley, J. C. Miller, S. M. Richmond.

**Barnes: Ronald Sidney** (Northern Poly. (London): Dept. of Arch.), Grasmere, Canterbury Road, Westgate-on-Sea, Kent. T. E. Scott, H. Anderson, H. C. Ashenden.

**Barnes: William Kenneth Aossie** (The Poly., Regent Street, London: Sch. of Arch.), 158 Gloucester Place, N.W.1. J. S. Walkden, P. G. Freeman, Denis Poulton.

**Barron: Keith John** (The Poly., Regent Street, London: Sch. of Arch.), 39 Birley Road, Whetstone, N.20. J. S. Walkden, D. C. H. Jenkin, E. C. Scherrer.

**Bashforth: Arthur** [Special Final], 35 Mount View Road, Sheffield, 8. A. G. Chant, Denis Clarke Hall, H. B. Leighton.

**Belam: Leonard Horace Gordon** [Special Final], 27 Palace Green, Addington, Croydon, Surrey. A. D. Sayers, Charles Blythin, W. J. Gregory.

**Bell: Harold Edgar** [Special Final], 6 Goyfield Avenue, Felixstowe. E. J. Symcox, Maurice Chesterton, J. A. Sherman.

**Bell: William Alfred, Dip.Arch.** (Leeds) (Leeds Sch. of Arch.), 51 Lambert Avenue, Roundhay, Leeds, 8. Noel Pyman, N. H. Fowler, W. H. Kirk.

**Lent: Ernest Langley** [Final], 'Crow's Nest,' Dunbar Street, Lossiemouth, Moray. W. J. Prince, M. W. Pike, Kenneth Palmer.

**Best: Harry Scott Thompson** [Special Final], 10 Highlands Court, Gipsy Hill, S.E.19. B. D. Thompson, R. Wilson, G. W. Home.

**Bestwick: Dennis** [Final], 'Hilfred,' Sutton Road, Mansfield, Notts. L. S. Stanley, J. W. M. Dudding, F. W. Tempest.

**Bick: Dennis Herbert [L.]** [Special Final], 28 Medicott Road, Sparkbrook, Birmingham, 11. Applying for nomination by the Council under Bye-law 3 (d).

**Blake: Albert Ashley** (The Poly., Regent Street, London: Sch. of Arch.), 15 Noel Road, Acton, W.3. J. S. Walkden, T. H. Eley, Joseph, Addison.

**Blazey: Margaret Anne** (Miss) (The Poly. Regent Street, London: Sch. of Arch.), 49 St. James Avenue, Friern Lane, Whetstone, N.20. J. S. Walkden, E. M. Fry, Peter Moro.

**Blight: Ernest** [Final], 36 Lynwood Avenue, Marsh Mills, Plymouth. E. U. Channon, Lieut.-Col. F. J. Taylor, E. A. W. Ixer.

**Bowe: William Cecil** (The Poly., Regent Street, London: Sch. of Arch.), 33 Amerland Road,

S.W.18. F. W. Hagell, J. S. Walkden, A. G. Crimp.

**Box: John Allan Hyatt** [Final], E 37 Du Cane Court, S.W.17. T. E. Scott, O. P. Milne, A. R. F. Anderson.

**Boyce: Dennis George** (The Poly., Regent Street, London: Sch. of Arch.), 49 Harvard Road, Spring Grove, Osterley, Middx. J. S. Walkden, Walter Goodesmith, D. C. H. Jenkin.

**Bradford: Philip Walter George** [Final], 107 Cromwell Road, St. Andrews, Bristol, 6. A. F. French, E. H. Button, H. T. B. Burrough.

**Braine: Donald Jack** [Special Final], 203 Castle Lane, Solihull, Warwicks. George Drysdale, J. B. Surman, G. C. Gadd.

**Cattermoul: Harry Sidney** [Special Final], 23 St. Edmunds Drive, Stanmore, Middx. F. R. Burnet, C. G. Mant, C. V. Ponder.

**Clarke: John Fowler** [Final], 5 Edgar Street, Worcester. L. C. Lomas, Frederick Hill, David Beecher.

**Collins: Douglas George** [Special Final], 'Wynroy,' Tollerton Lane, Tollerton, Notts. E. W. Roberts, E. Frear, A. E. Eberlin.

**Crisp: James Wallace** [Special Final], 8 Avenue Road, King's Lynn, Norfolk. James Macgregor, Peter Bicknell, and applying for nomination by the Council under Bye-law 3 (d).

**Cull: Douglas Arthur** [Final], 26a Shaftesbury Road, Bournemouth. R. A. Phillips, A. E. Geens, M. G. Cross.

**Davis: Alan Henry** [Special Final], The Bungalow, Pinfarthings, Amberley, Glos. S. S. Careless, H. F. Trew, H. S. Davis.

**Dennis: Stanley Frederick** (The Poly., Regent Street, London: Sch. of Arch.), 1 Glenluce Road, Blackheath, S.E.3. E. C. Scherrer, J. K. Hicks, E. D. Mills.

**De Villiers: Roeland Perold** (Passed a qualifying exam. approved by the Inst. of South African Architects), c/o Standard Bank of South Africa Ltd., 9 Northumberland Avenue, W.C.2. Prof. L. W. T. White, D. R. Harper, O. Pryce Lewis.

**Dick: Arthur James** (Nottingham Sch. of Arch.), 11 Medina Drive, Tollerton, Notts. C. H. Calvert, R. W. Cooper, and applying for nomination by the Council under Bye-law 3 (d).

**Elder: Frank Hercus** [Special Final], 19 Osberton Road, Lee, S.E.12. Victor Heal, L. S. Sullivan, E. C. Scherrer.

**Evans: Hugh Gisbert, Dip.Arch.** (Glasgow) (Glasgow Sch. of Arch.), 8 Norfolk Place, Halifax, Yorks. Prof. W. J. Smith, T. H. Hughes, A. B. Waters.

**Feaster: Janet Marian** (Miss) [Final], 6 Cliff Road, Hornsea, E. Yorks. Edgar Farrar, Allanson Hick, G. D. Harbron.

**Fer: Rene Eugene William** [Special Final], 117 Upper Tollington Park, N.4. R. W. White, R. T. Grummant, C. G. Stillman.

**Field: Herbert Charles** [Special Final], 62 Box Tree Road, Harrow Weald, Middx. Niel Martin-Kaye, C. W. Box, Edwin Williams.

**Francis: Pamela** (Miss) (Arch. Assoc. (London): Sch. of Arch.), 102 Nork Way, Banstead, Surrey. R. F. Jordan, Edward Playne, L. H. Bucknell.

**Garner: Maurice James** [Special Final], 15 Cypress Grove, Swindon, Wilts. G. D. G. Hake, T. H. B. Burrough, T. Burrington.

**Garry: Oscar** [Special Final], 3 Abbot's Place, West End Lane, N.W.6. L. H. Bucknell, R. E. Enthoven, H. G. Goddard.

**Gay: Geoffrey Reeve** [Special Final], 5 Ivy Way, Shrublands, Gt. Yarmouth, Norfolk. A. G. Berry, F. R. B. Haward, E. W. B. Scott.

**Gibson: George Kilpatrick** [Final], 'Sunset,' Downpatrick Road, Crossgar, N. Ireland. T. R. Eagar, R. H. Gibson, R. S. Wilshe.

**Gibson-Henry: Roderic Albert Chalcotte Thomas** [Special Final], 5 University Terrace, Belfast, N. Ireland. R. S. Wilshe. J. R. Young, Patrick Gregory.

**Goatley: Graham Frederick** [Final], 'Rothsay,' 18 Corndon Road, Harlescott, Shrewsbury. A. G. Chant, T. S. Davies, L. S. Stanley.

**Gould: George David** (Univ. of Sheffield: Dept. of Arch.), 72 Fore Street, Kingskerswell, Newton Abbot, S. Devon. Prof. Stephen Welsh, H. C. Powell, J. A. Powell.

**Granger-Taylor: Jerry, B.A.Arch.** [Special Final], Elysium, Heathcote Street, W.C.1. J. Macgregor, W. A. S. Lloyd, W. Curtis Green.

**Gray: John Colin** (Nottingham Sch. of Arch.), 195 Sneinton Dale, Nottingham. T. C. Howitt, C. F. W. Haseldine, R. E. M. Coombes.

**Green: Bernard Walter** [Special Final], 13 Woodstock Road, Heavitree, Exeter. Trenwith Wills, L. H. Bucknell, D. H. McMorran.

**Grey: George Albert** [Final], City Architect's Office, Eagle House, Bristol. P. F. Nightingale, D. E. Nightingale, J. N. Meredith.

**Grisdale: Keith James, Dip.Arch.** (Leeds) (Leeds Sch. of Arch.), 46 Weetwood Lane, Headingley, Leeds, 6. N. R. Paxton, and applying for nomination by the Council under Bye-law 3 (d).

**Grylls: Garland Glynn** (Arch. Assoc. (London): Sch. of Arch.), Green Hollow, Bessels Green, nr. Sevenoaks, Kent. R. F. Jordan, Sidney Loweth, W. H. Ansell.

**Halman: James Henry** (Leicester Coll. of Art and Technology: Sch. of Arch.), Stone Cottage, Chirk, Wrexham, N. Wales. F. Chippindale, Kenneth Palmer, W. J. Prince.

**Harding: John Latham** [Final], 'Trees,' Bourne Hill, Wierstead, Ipswich. E. M. Rice, David Beecher, and applying for nomination by the Council under Bye-law 3 (d).

**Harries: John Morgan, B.Arch. (Hons.)** (Wales) (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), 'Broomhill,' 17 Connaught Street, Port Talbot, Glam. Lewis John, T. A. Lloyd, Prof. Stephen Welsh.

**Hepworth: Henry Fred** [Special Final], 46 Jubilee Road, Aldershot, Hants. J. V. Nisbet, G. M. Aylwin, A. J. Stedman.

**Higginbotham: Harry Walker** [Special Final], 25 Bishopool Estate, Chepstow Road, Newport, Mon. Johnson Blackett, G. H. Davies, C. F. Bates.

**Hildebrand: Ronald Peter** (The Poly., Regent Street, London: Sch. of Arch.), 32, Sherwood Road, Hendon, N.W.4. J. S. Walkden, A. F. A. Trehearne, E. E. Somake.

**Hill: John Charles** [Special Final], 13 Enler Park West, Dundonald, Co. Down, N. Ireland. John Seeds, T. R. Eagar, J. R. Young.

**Holt: Robert James** [Special Final], 66 Grange Road, Glasgow, S.2. L. W. Hutson, John Watson, G. A. Boswell.

**Hope: Charles Adrian, Dip.Arch. (Edin.)** (Edin. College of Art: Sch. of Arch.), 23 Ann Street, Edinburgh, 4. J. R. McKee, and applying for nomination by the Council under Bye-law 3 (d).

**Hopkins: Roy** (Northern Poly. (London): Dept. of Arch.), c/o Barclays Bank Ltd., Old Christ-



church Road, Bournemouth. R. A. Phillips, A. E. Goens, M. G. Cross.

**Howell: Daniel Rees** [Special Final], c/o Borough Architects' Dept., Civic Centre, Southampton. R. S. Wilshe, and the President and Hon. Secretary of the Royal Soc. of Ulster Architects under Bye-law 3 (d).

**Howell: Donald Coutts** (The Poly., Regent Street, London: Sch. of Arch.), 4 London House, Old Dover Road, Capel-le-Ferne, Kent. Edward Armstrong, Robert Atkinson, A. F. B. Anderson.

**Hughes: Geoffrey Maden** [Final], 77 Old Park Avenue, Enfield. T. H. Eley, and applying for nomination by the Council under Bye-law 3 (d).

**Hunt: Herbert George**, Dip.Arch. (The Poly., Regent Street, London: Sch. of Arch.), 51 Willington Street, Maidstone. A. C. Bossom, J. S. Walkden, C. J. Cable.

**Irwin: William Henry (Captain)** [Special Final], Green Shutters, Ascot Gardens, Knock, Belfast. T. R. Eagar, J. R. Young, P. B. Gregory.

**Jarvis: Norman Karl** [Final], 39 Greenwood Close, Morden, Surrey. W. S. Grice, W. S. A. Gordon, G. W. Home.

**Johnson: Derrick Beresford** [Final], 49 Glenesk Road, Eltham, S.E.9. A. J. Davis, Thomas Spencer, E. M. Joseph.

**Kench: Albert Joseph** [Final], 13 Walton's Parade, Preston, Lancs. A. Douglas Jones, Prof. R. A. Cordingley, G. N. Hill.

**Kershaw: Stanley** [Final], 27 College Road, Oldham, Lancs. H. T. Seward, R. G. Morgan, W. C. Young.

**Key: Peter Stuart** [Special Final], 79 Riddlesdown Road, Purley, Surrey. T. E. Scott, H. G. Cherry, F. R. S. Yorke.

**King: Thomas Edward James** [Special Final], Cleveland House, Dane Road, St. Leonards, on-Sea, Sussex. J. N. Meredith, C. F. Callow, C. H. Strange.

**Lackie: George Thomas** [Special Final], 2 Blair Street, Craigie, Perth. William Ross, G. C. Young, W. E. Thomson.

**Levis: Cameron James**, Dip.Arch. (Liverpool Sch. of Arch.: Univ. of Liverpool), 4 Waverly Terrace, Kenilworth Square, Rathgar, Dublin. Prof. L. B. Budden, Donald Brooke, B. A. Miller.

**Linden: David Kenneth**, A.A.Dip., A.M.T.P.I. (Arch. Assoc. (London): Sch. of Arch.), 36 Adam and Eve Mews, London, W.8. Miss J. B. Drew, Richard Sheppard, E. M. Fry.

**Lister: Vera Mary** (Miss) (Northern Poly. (London): Dept. of Arch.), London Hydraulic Power Co., 37 Wapping Wall, E.1. T. E. Scott, and applying for nomination by the Council under Bye-law 3 (d).

**Little: Charles Martin** [Final], 213 Camber Drive, Pevensey Bay, Sussex. K. E. Black, C. Leckenby, A. N. Thorpe.

**Long: Edward George** [L] [Special Final], 'Heather Bank,' Warren Edge Road West, Southbourne, Bournemouth. K. E. Black, S. E. Urwin, J. L. Denman.

**McCreedy: Sydney Victor Woods** [Final], 'Beechfield,' Hillsborough, Co. Down. P. B. Gregory, T. R. Eagar, R. H. Gibson.

**MacDonald: William** [Special Final], 494 Shields Road, Glasgow. John Watson, T. S. Cordiner, Alexander Wright.

**McGoran: William**, B.Arch. (Univ. Coll., Dublin, Ireland: Sch. of Arch.), 22 Merlyn Park, Ballsbridge, Dublin. Prof. J. V. Downes, J. Munden, A. E. Beswick.

**McMordie: Harold Millar** [Special Final], Glenbrook, Colin Road, Dunmurry, Co. Antrim. T. R. Eagar, R. H. Gibson, P. B. Gregory.

**McSweeney: Patrick Leo** [Special Final], 17 North Wall, Cork. D. A. Levie, and applying for nomination by the Council under Bye-law 3 (d).

**Mackinnon: Joan Mary** (Miss) (Glasgow Sch. of Arch.), St. John's Manse, 19 High Calisde, Paisley. Prof. W. J. Smith, J. S. Maitland, A. G. Jury.

**Manning: Philip Ward** [Special Final], 11 Strathbrook Road, Streatham, S.W.16. A. W. Reading, W. A. Rutter, Thomas Spencer.

**Maxwell: William Barklie** [Special Final], 10 Cleaver Gardens, Belfast, N. Ireland. T. R. Eagar, John Seeds, R. H. Gibson.

**Middleton: Derek George** (The Poly., Regent Street, London: Sch. of Arch.), 59 Sandridge Road, St. Albans, Herts. J. S. Walkden, C. H. Aslin, D. W. Aldred.

**Morgan: Kenneth Angus** [Final], 'Brynholme,' 18 Carew Road, Eastbourne, Sussex. H. H. Ford, K. F. Wray, R. W. Stevenson.

**Morris: Ivan Ernest** [Special Final], 47 St. Giles Street, Northampton. Walter Rosser, F. H. Allen, A. N. Harris.

**Morris: Pamela Alexandra** (Miss) (The Poly., Regent Street, London: Sch. of Arch.), 22 Cotswold Gardens, Hendon Way, N.W.2. J. S. Walkden, Rolf Hellberg, Edward Armstrong.

**Newman: Gabriel** (The Poly., Regent Street, London: Sch. of Arch.), 9 Brixton Hill Court, S.W.2. J. S. Walkden, David Beecher, Walter Goodesmith.

**North: Dudley Edward Vivian** [Special Final], 7 Doveton Way, Newbury, Berks. O. H. H. Nuttall, H. M. Luyken, V. L. Nash.

**Nunn: James Huntley** (Northern Poly. (London): Dept. of Arch.), Derry House, Waterbeach, Cambs. T. E. Scott, and applying for nomination by the Council under Bye-law 3 (d).

**O'Dwyer: Joseph Mary** [Special Final], 14 Upper Fitzwilliam Street, Dublin, Eire. P. J. Munden, Prof. J. V. Downes, James O'Hanlon Hughes.

**O'Sullivan: Kenneth Barry** (Univ. College, Dublin, Ireland: Sch. of Arch.), 5 Mellifont Avenue, Dun-Laoghaire, Co. Dublin. Prof. J. V. Downes, J. J. Robinson, Raymond McGrath.

**Parrish: Horace** [Special Final], 14 Belmont Hall Court, Belmont Grove, S.E.13. Prof. L. B. Budden, Donald Brooke, B. A. Miller.

**Penson: John** [Special Final], 33 Woodland Road, Worcester. L. C. Lomas, F. H. Heppel, Frederick Hill.

**Phillipson: Edward Emerson Jacques** [Special Final], 3 Islandview Terrace, Larne Harbour, County Antrim. J. H. Stevenson, W. J. H. Stevenson, L. S. Stanley.

**Pittman: George Robert** [Special Final], 31 Bolingbroke Grove, Wandsworth Common, S.W.11. H. S. Gardiner, N. L. Reece, Norman Keep.

**Price: Thomas Gerard**, M.C., Dip.Arch. (Wales) (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), Charlton House, Clifton Road, Newport, Mon. Lewis John, C. F. Bates, C. L. Jones.

**Prichard: Francis Lee** (Liverpool Sch. of Arch.: University of Liverpool), 'The Gables,' Moor

Lane, Kirkby, Liverpool, 10. Prof. L. B. Budden, B. A. Miller, Donald Brooke.

**Purdy: Ian Millward** [Final], 91 Carisbrooke Road, Leicester. F. Chippindale, J. S. Harrison, G. A. Cope.

**Raiker: William Gordon** [Special Final], 65 Broadclyst Gardens, Thorpe Bay, Essex. C. W. Box, A. G. Alexander, Trenwith Wills.

**Raine: Alan** (Univ. of Sheffield: Dept. of Arch.), 3 Huntingdon Crescent, Sheffield, 11. Prof. Stephen Welsh, H. B. Leighton, J. M. Jenkinson.

**Rendle: John Howard** [Final], 59 Dartmouth Avenue, Walsall, Staffs. G. D. G. Hake, T. H. B. Burrough, E. H. Button.

**Richmond: Alfred John** [Special Final], 246 Bradford Road, Riddlesden, Keighley, Yorks. Benjamin Chippindale, W. H. King, Victor Bain.

**Rigler: John Sidney** [Special Final], 30 Mill Lane, Earley, Reading, Berks. T. L. J. Chamberlain, A. L. Roberts, C. W. Box.

**Robbins: William Henry Lewis Driscoll** [Special Final], 19d Netherhall Gardens, Hampstead, N.W.3. L. S. Stanley, S. Stern, J. R. Young.

**Robson: Kenneth Lynn** [Special Final], 163 Pastures Hill, Littleover, nr. Derby. T. W. East, L. S. Stanley, E. W. Pedley.

**Rowell: Arthur John** [Special Final], 30 Upper Saint Michael's Road, Aldershot, Hants. F. C. Benz, G. M. Aylwin, A. J. Stedman.

**Roycroft: Reginald James** [Special Final], 56 Marlborough Park South, Belfast. T. R. Eagar, P. B. Gregory, R. H. Gibson.

**Russell: Charles Stokes** [Special Final], 1 Raleigh Road, Coventry, Warwickshire. Applying for nomination by the Council under Bye-law 3 (d).

**Scott: Richard Sebastian Gilbert** (The Poly., Regent Street, London: Sch. of Arch.), 57 Oslo Court, Prince Albert Road, N.W.8. Sir Giles Scott, F. G. Thomas, A. G. Scott.

**Sharpe: Donald William** [Special Final], Stile Croft, The Green, Roade, nr. Northampton. A. N. Harris, A. E. Eberlin, F. H. Allen.

**Sinclair: Helen Dora** (Miss) (Arch. Assoc. (London): Sch. of Arch.), 17 Park Road, N.W.1. R. F. Jordan, L. H. Bucknell, H. G. Goddard.

**Smith: Derek George** [Special Final], 12 Pierpoint Road, Acton, W.3. W. S. Blount, S. A. Farmer, H. C. H. Monson.

**Smith: Jason Lewis Francis**, M.C. [Special Final], 45 Eyn's Road, Eastbourne, Sussex. H. H. Ford, L. S. Stanley, F. C. Benz.

**Snell: Margaret Graham** (Miss), Dip.Arch. (The Poly., Regent Street, London: Sch. of Arch.), 8 Westcombe Park Road, Blackheath, S.E.3. J. S. Walkden, Peter Moro, P. B. Dannatt.

**Sowerby: John Gibson** [Final], 6 Appleby Grove, West Hartlepool. S. M. Richmond, and applying for nomination by the Council under Bye-law 3 (d).

**Steele: Charles Gordon Alexander** (Edin. Coll. of Art: Sch. of Arch.), 123 Hillhouse Road, Davidson's Mains, Edinburgh, 4. Leslie Grahame-Thomson, W. I. Thomson, W. H. Kininmonth.

**Summersgill: Peter Jack** (The Poly., Regent Street, London: Sch. of Arch.), 62 Wykeham Road, Hendon Central, N.W.4. J. S. Walkden, F. Q. Farmer, Frankland Dark.

**Sunavala: Behram Ardeshir** [Special Final], 11 Clifton Gardens, Warwick Avenue, W.9. D. W. Ditchburn, P. P. Kapadia, C. W. Box.

**Sutherland: John**, Dip.Arch. (Edin.) (Edin. Coll. of Art: Sch. of Arch.), 11 Eyre Place, Edinburgh, 3. J. R. McKee, and applying for nomination by the Council under Bye-law 3 (d).

**Sutton: Robert William** [Special Final], Ford Cottage, Easton, Norwich. R. O. Bond, S. J. Wearing, E. W. B. Scott.

**Sweetman: Eric Charles** [Final], 24 Donovan Court, Drayton Gardens, S.W.10. L. S. Stanley, Ronald Ward, Stewart Thomson.

**Tavill: Dennis** [Final], 1 Belfield Road, Prestwich, Lancs. A. Douglas Jones, C. G. Agate, H. T. Seward.

**Taylor: Harry** [Special Final], 56 Bruntsfield Gardens, Edinburgh, 10. W. A. Ross, A. H. Mottram, J. R. McKay.

**Thomson: David Arthur** [Final], 84 High Street, Shaw, Lancs. A. Douglas Jones, H. T. Seward, W. C. Young.

**Thorne: Phyllis Kathleen** (Miss) (The Poly., Regent Street, London: Sch. of Arch.), 31 Morden Hill, Lewisham, S.E.13. J. S. Walkden, Howard Robertson, J. M. Easton.

**Turner: Geoffrey Farne**, B.Arch. (Hons.) (Dunelm) (King's Coll. (Univ. of Durham), Newcastle-upon-Tyne: Sch. of Arch.), 27 Sackville Road, Heaton, Newcastle-on-Tyne, 6. Prof. W. B. Edwards, D. L. Couves, J. H. Napper.

**Twist: Eunice** (Mrs.) [Final], Whitestones, The Roundings, Hertford Heath, Herts. A. Douglas Jones, C. H. Aslin, J. S. Beaumont.

**Twohig: Dennis Edward** [Final], 39 Corbridge Road, Sutton Coldfield, Warwickshire. Reginald Edmonds, Herbert Jackson, F. Potter.

**Viner: Wilfred James** [Special Final], 26 The Avenue, Lewes, Sussex. E. A. Verger, K. E. Black, J. L. Denman.

**Vivian: John Valentine Julian** [Final], 49 Waterloo Road, Bedford, Beds. Prof. A. E. Richardson, E. A. S. Houfe, G. P. Allen.

**Vokes: Wyndham Melhuish** (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), 47 St. Michael's Road, Llandaff, Cardiff. Lewis John, C. L. Jones, T. A. Lloyd.

**Wallwork: Alan Joseph Astley** [Final], c/o W. Sproskon, Esq., Priory Farm, Bowdon Vale, Cheshire. L. C. Howitt, Edgar Sutcliffe, F. L. Halliday.

**Warner: Ivor** [Final], 1 Perth Road, Ilford, Essex. Harold Conolly, C. C. Shaw, H. W. Allardyce.

**Waters: George Alfred** [Final], 13 Hill View Road, Hildenborough, Tonbridge, Kent. S. H. Loweth, R. T. Green, W. H. Poole.

**Weeks: Charles** (Nottingham Sch. of Arch.), 155 Central Avenue, Beeston, Notts. W. F. B. Lovett, G. Swayne-Thomas, and applying for nomination by the Council under Bye-law 3 (d).

**Weinreich: Harald** [Final], 11 West End Court, Priory Road, N.W.6. Cecil Howitt, C. A. Farey, F. W. Halfhide.

**Wilcox: Harold** [Special Final], 96 Victoria Avenue, Bloxwich, Walsall, Staffs. Samuel Harrison, F. J. Osborne, Frank Wager.

**Wilson: Frederick William** [Special Final], 108 Godington Lane, Orpington, Kent. W. H. Gunton, E. N. Clifton, J. E. K. Harrison.

**Yates: Arthur** [Final], 'Aynho', Manor Drive, Dowbridge, Kirkham, Preston, Lancs. J. S. Beaumont, H. T. Seward, W. C. Young.

**Young: James Kenny**, Dip.Arch. (Dundee) (Dundee Coll. of Art: Sch. of Arch.), 241 Arbroath Road, Dundee. John Needham, Basil Spence, Leslie Grahame-Thomson.

#### AS LICENTIATES (15)

**Adam: Alexander K.**, Staff Architect, Stevenage Development Corporation, Aston House, nr. Stevenage, Herts; 87 Westbourne Court, Orsett Terrace, W.2. Gordon Stephenson, F. R. S. Yorke, P. G. Budgen.

**Bradford: James Henry** (Major R.E.), The Imperial Tobacco Co. Ltd., Bristol, 3; 109 Woodleigh Gardens, Bristol, 4. Applying for nomination by the Council under Bye-law 3 (d).

**Coulbeck: Charles Gordon**, Architectural Department, Borough Engineer's Office, Halifax; 19 Nursery Grove, Ovenden, Halifax. C. Sunderland, and the President and Hon. Sec. of the West Yorks Soc. of Arch. under Bye-law 3 (a).

**Jack: Samuel Lawrie**, 35 Warwick Road, Carlisle; 308 Warwick Road, Carlisle. J. H. Haughan, Stephen Mann, John Slack.

**Masek: Joseph Louis**, 35 Clarendon Gardens, Ilford, Essex. A. P. Lloyd, W. J. Lewis, and applying for nomination by the Council under Bye-law 3 (d).

**Mullins: William Patrick**, Borough Architect's Department, Town Hall, Catford, S.E.6; 3 Dickson Road, Eltham, S.E.9. M. H. Forward, H. W. Parnacott, W. J. Reed.

**Nelson: Philip**, County Architect's Department, County Hall, Northampton; 50 Guildhall Road, Northampton. Joseph Perkins, A. N. Harris, and Walter Rosser.

**Price: Wilfred Rowland Pursell**, Architect's Department, Salop County Council, 5 Belmont, Shrewsbury; 45 Underdale Road, Shrewsbury. A. G. Chant, A. N. Harris, T. S. Davies.

**Ross: Neil**, 20 St. Andrew Square, Edinburgh, 2; 10 Elgin Terrace, Edinburgh, 7. R. Caruthers Ballantyne, W. J. Taylor, J. A. O. Allan.

**Russell: John Alfred**, Architect's Department, London Transport, 55 Broadway, S.W.1; Somerville House, High Street, Bishops Stortford, Herts. R. B. Craze, Thomas Bilbow, F. C. Button.

**Salmon: Charles Philip**, 5 Manchester Square, W.1; 239 Windsor Avenue, Hillingdon, Middlesex. E. R. Taylor, B. L. Sutcliffe, A. R. Borrett.

**Still: Ronald Kenneth Arthur**, Borough Surveyor's Office, Town Hall, Lewes; 76 Valence Road, Lewes. Thomas Rayson, H. F. Hurcombe, E. A. Verger.

**Tarrant: Leonard Ralph**, 10 Boundary Road, Eastcote, Pinner, Middlesex. J. P. Blake, Lt.-Col. W. E. Cross, W. F. B. Lovett.

**Travis: Kenneth**, Architect to the Newport Pagnell R.D.C., Station Road, Newport Pagnell; 32 Cranfield Road, Woburn Sands, Bletchley, Bucks. Applying for nomination by the Council under Bye-law 3 (d).

**Ward: Arnold**, c/o Barrow R.D.C., Council Offices, 133 Loughborough Road, Leicester; 165 Wanlip Lane, Birstall, nr. Leicester. S. Penn Smith, F. H. Jones, A. L. Sharpe.

#### ELECTION: OCTOBER 1949

An election of candidates for membership will take place in October. The names and addresses of the overseas candidates, with the names of

their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A. not later than Saturday 23 July 1949. The names following the applicant's address are those of his proposers.

#### AS FELLOWS (3)

**Edleston: Wilfrid Edgar** [A 1932], The South African Breweries Ltd., P.O. Box 1099, Johannesburg, South Africa; Flat 24, No. 166, Jan Smuts Avenue, Johannesburg. Norman Jones, Leonard Rigby, Howard Robertson.

**Hicks: Edward Charles Coleman**, A.M.T.P.I. [A 1937], Consulting Architect, Government of East Bengal, Dacca, East Bengal; Flat No. 3, Staff Quarters, Old Government House, Dacca. J. L. Fouracre, E. U. Channon, J. Challice.

**Taylor: Charles Silver Milne** [A 1933], Royal Exchange Buildings, Durban; Salisbury Avenue, Westville, nr. Durban. E. M. Powers, Brigadier G. T. Hurst, Gordon Leith.

#### AS ASSOCIATES (8)

The name of a school, or schools, after a candidate's name indicates the passing of a recognized course.

**Berger: Maurice Louis**, B.Arch. (Cape Town) (Passed a qualifying exam. approved by the I.S.A.A.), c/o M. D. Berman, Esq., 14 Persseverance Building, Main Street, Port Elizabeth, South Africa. Prof. L. W. T. White, O. Pryce Lewis, D. R. Harper.

**Butler: John Harding** (Passed a qualifying exam. approved by the R.A.I.A.), Sloane Square, Coronation Drive, St. Lucia, Brisbane, Queensland, Australia. R. K. Stevenson, S. T. Parkes, A. R. Butler.

**Freak: Albert Anzac** (Passed a qualifying exam. approved by the R.A.I.A.), 44 Rooke Street, Devonport, Tasmania. Roy Smith, and applying for nomination by the Council under Bye-law 3 (d).

**McDonald: Hector James** (Passed a qualifying exam. approved by the R.A.I.A.), Woodhill Avenue, Coorparoo, Brisbane, Queensland, Australia. F. G. Costello, A. E. Brooks, E. P. Trewern.

**Rosenbaum: Frederic** (Passed a qualifying exam. approved by the R.A.I.A.), 2 St. Edmonds Grove, Glen Iris, S.E.6, Victoria, Australia. C. E. Serpell, J. F. D. Scarborough, L. M. Perrott.

**Wille: Roland Carl**, Dip.Arch. (Cape Town) (Passed a qualifying exam. approved by the I.S.A.A.), 14 Clarendon House Annexe, Baker Avenue, Salisbury, S. Rhodesia. Prof. L. W. T. White, D. R. Harper, O. Pryce Lewis.

**Myles: David**, Dip.Arch. (Edin.) (Edin. Coll. of Art: Sch. of Arch.), c/o Messrs. Kennedy, Furner, Irvine-Smith, and Joubert, Sacke's Buildings, Joubert Street, Johannesburg. A. H. Mottram, Leslie Grahame-Thomson, A. S. Furner.

**Perrott: Leslie Marsh, Jr.** (Passed a qualifying exam. approved by the R.A.I.A.), 10 Newbay Crescent, Brighton, Melbourne, Australia. L. M. Perrott, Leighton Irwin, J. F. D. Scarborough.

#### AS LICENTIATE (1)

**Thomas: Llewellyn Caswollawn**, Sussman House, P.O. Box 276, Lusaka, N. Rhodesia; Rhodes Hotel, N'dola. Applying for nomination by the Council under Bye-law 3 (d).

## Review of Films—10

*The country of origin and date of release are given first. The film is in monochrome unless otherwise stated. The sizes (35 mm. and 16 mm.) are given. Sound films are marked 'sd.', and silent 'st.'. The running time is given in minutes. (F) indicates free distribution. (H) indicates that a hiring fee is payable.*

### Park Here

Britain 1948 (F)

**Summary.** An account of the proposed scheme for National Parks in Great Britain. A comparison is drawn between the congestion of towns and unspoiled tracts of country, but much of this is being destroyed by unsightly building. The aim of the National Parks scheme is to preserve for all time such places of historic beauty as Dovedale, South Downs, Pembroke-

shire coast, Grasholme with its gannetry, the Lake District and parts of North Wales. The public, however, must be taught to appreciate and respect the value of such areas, especially where farms form part of the preserved area, because these farms produce much of the nation's food supply.

**Appraisal.** The idea of making a film on this subject is an excellent one. Much of the material used is good, and the theme well thought out; both the commentary and the human approach make the film interesting, but the result is unfortunately completely marred by very poor photography.

35 sd. 16 sd. 17 minutes. Central Film Library, Imperial Institute, S.W.7. (Reference No. U.K. 893.)

### The Generation of Electricity

Britain 1947 (F). Age group 13-15.

**Summary.** Part 1 shows by means of simple

laboratory experiments, with magnet solenoid, galvanometer, etc., how electricity can be generated. By using the same principle on a commercial scale steam or water turbines can be used to actuate a dynamo which produces electricity.

Part 2 shows how water power and steam power are used to turn the turbines of the generators used in big power stations. The electricity so produced is passed into the national grid system. The film concludes with a short recapitulation.

**Appraisal.** This film is intended as a revision for students who have already done elementary electricity, but it could probably be shown with advantage to others, including adult audiences. An excellent and well-constructed film in which a complicated subject is simply and lucidly explained. Good use is made of diagrams.

16 sd. 10 minutes. British Electrical Development Association, 2 Savoy Hill, W.C.2.

## Notes from the Minutes of the Council

### MEETING HELD 8 MARCH 1949

#### Appointments

(A) Architects' Registration Council of the United Kingdom: R.I.B.A. Representative on Admission Committee: Mr. G. F. Whitby [A], in place of Mr. R. B. Craze [F].

(B) London Building Acts Tribunal of Appeal: R.I.B.A. Representative and Deputy: Sir Banister Fletcher (Past President), re-appointed, with Mr. Charles Woodward [A], as deputy, also re-appointed.

(C) Professional Classes Aid Council: R.I.B.A. Representative: Mr. J. Alan Slater [F], re-appointed.

(D) Municipal College, Southend: Architecture and Building Advisory Committee: R.I.B.A. Representative: Mr. A. S. Belcham [F], re-appointed.

(E) Festival of Britain, 1951: Conference to co-ordinate arrangements for festivities in connection with Architecture, Town Planning and Building Research: R.I.B.A. Representatives: Mr. H. S. Goodhart-Rendel (Past President) and Mr. C. D. Spragg, Secretary, R.I.B.A.

(F) B.S.I. Committee on Modular Planning: R.I.B.A. Representatives: Mr. P. L. Cocke [A], Mr. D. Dex Harrison [A], Mr. R. N. Wakelin [A], Mr. J. R. Weeks [A].

(G) B.S.I. Committee TIB/14: Resin-bonded Wood Chip Boards: Mr. C. C. Handyside [A], in place of Mr. David Booth [F].

**The Honorary Corresponding Membership:** The Secretary reported that Shr. Marcelo Roberto had written expressing his acceptance of and thanks for the Council's nomination for election as an Honorary Corresponding Member of Brazil.

**R.I.B.A. Diploma in Town Planning:** The Council awarded the R.I.B.A. Diploma in Town Planning to Mr. Clifford E. Plews [A].

**R.I.B.A. Registration Committee:** The President referred to the retirement of Mr. Darcy Braddell [F] from the appointment of Chairman of the R.I.B.A. Registration Committee and (ex-officio) membership of Council. He expressed on behalf of the Council their deep appreciation of the guidance and help that Mr. Braddell had given as Chairman for so many years, and on his proposition a hearty vote of thanks was passed in favour of Mr. Braddell.

**Industrial Conference:** The President referred to the outstanding success which had attended the Industrial Conference held at the Institute on 3 and 4 March. He said he wished to pay a

special tribute to Sir Percy Thomas (Past President) for his invaluable work as Chairman of the Conference.

By a unanimous resolution a cordial vote of thanks was passed in favour of Sir Percy Thomas, the speakers and all others who had assisted in the organization.

**Committee on Houses of National Importance:** At the invitation of the Committee set up by the Treasury to take evidence on the selection, care and maintenance of Houses of National Importance, the Council appointed a sub-committee consisting of the following members to prepare evidence on behalf of the Institute: The Hon. Lionel Brett [A], Mr. H. S. Goodhart-Rendel [F], the Hon. Godfrey Samuel [F], Mr. Raglan Squire [F], Mr. John Summerston [A].

**Review of the Bye-laws:** The Council appointed a committee consisting of the Honorary Secretary (Mr. A. L. Roberts), the Honorary Treasurer (Mr. John L. Denman), and Mr. Charles Woodward [A] to carry out a comprehensive review of the Bye-laws and to report on what amendments were considered necessary.

**Method of Measuring Cubic Content of Buildings:** The President reported to the Council on the agreement reached between the Central Land Board, the Royal Institution of Chartered Surveyors and the R.I.B.A. in the preparation of a memorandum on a standard method for measuring cubic content of buildings for purposes of assessment of development charges under the Town and Country Planning Act, 1947. A copy of the memorandum as agreed has been published as an appendix to Practice Notes issued by the Central Land Board, and is obtainable from H.M. Stationery Office.

**Working Party on the Building Industry:** The Council considered in draft form the evidence which had been prepared on behalf of the Institute for submission to the Ministry of Works Working Party on the Building Industry.

The draft was approved, and the cordial thanks of the Council were conveyed to the Chairman (Mr. T. Cecil Howitt [F]) and the members of the drafting committee.

**Supply of Drawing Office Materials:** The Council considered a reply from the Board of Trade to representations made following the Council meeting of 8 February. In view of the request from the Board of Trade for specific evidence in the form of samples of defective pencils and other material it was decided to

write to the Schools of Architecture asking for their views and for any evidence of defective material they might wish to submit.

**Commemoration of Opening of R.I.B.A. Building:** It was decided to provide for the permanent commemoration of the opening of the R.I.B.A. building by H.M. King George V and H.M. Queen Mary by placing the following inscription on the wall panel facing the first flight of stairs immediately under the words 'The Henry L. Florence Memorial Hall'.

'H.M. King George V, accompanied by H.M. Queen Mary, opened this building on November 8th 1934.'

**The Licentiate-ship: Restriction to Architects registered within the United Kingdom:** Following representations from an Allied Society overseas, the Council carefully reviewed the question of making election to the Licentiate-ship open to architects living abroad and registered as such in those dominions or colonies where registration was in force or sponsored by the local Allied Society where no such registration was in force. It was agreed that it would be inadvisable to make any relaxation, and the Council reaffirmed their decision given in 1934 that the Licentiate-ship shall be restricted to architects whose names are on the statutory register maintained within the United Kingdom.

**Equality of Pay for Men and Women Architects:** The Council considered an advertisement recently issued by the National Coal Board inviting applications for posts as assistant architects in which salaries offered for women were less grade by grade than for men. The Council reaffirmed the policy previously laid down that there should be equality of pay between men and women architects provided that responsibilities and duties were the same, and it was agreed to make representations in the matter to the National Coal Board.

**Membership:** The following members were elected: as Fellows, 3; as Associates, 43; as Licentiates, 12. Students: 69 Probationers were elected as Students.

**Applications for Election:** Applications for election were approved as follows: *Election 3 May 1949:* as Hon. Corresponding Members, 2; as Associates, 119; as Licentiates, 10. *Election October 1949 (Overseas Candidates):* as Fellow, 1; as Associates, 6.

**Applications for Reinstatement:** The following applications were approved: as Associate, Walter Brand; as Licentiate, Stephen Grylls Wilson.

**Resignations:** The following resignations were accepted with regret: Samuel George Short [F], Angus Greig Stewart [A].



# Members' Column

*This column is reserved for notices of changes of address, partnership and partnerships vacant, or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.*

## APPOINTMENTS

**Mr. T. S. Davies [F]**, Chief Assistant Architect, Shropshire County Council, has been appointed Deputy County Architect to the Caernarvonshire County Council as from 1 May 1949.

**Mr. L. J. Hodges [A]** has been appointed Assistant County Planning Officer (Architecture) to the Hampshire County Council, and will be pleased to receive trade catalogues etc. at Litton Lodge, Clifton Road, Winchester (Winchester 3278).

**Mr. W. E. Graham [A]** has been appointed Senior Assistant County Planning Officer to the Armagh County Council, and his future address for correspondence etc. will be County Planning Office, 10 Abbey Street, Armagh, Ireland.

**Mr. Zahir-ud Deen Khwaja [A]** has been appointed Assistant Architect to the Government of East Bengal. His previous address was 31 Lakshmi Mansions, Lahore, W. Punjab, Pakistan. Communications should now be addressed to him: Assistant Architect, Government of East Bengal, Dacca, E. Pakistan.

## PRACTICES AND PARTNERSHIPS

**Mr. D. G. MacConville [A]** has commenced practice at Bewsey Chambers, Bewsey Street, Warrington, and will be pleased to receive trade catalogues etc. His telephone number is Warrington 1508.

**Mr. Derby Fazackerley [L]** has from 1 April 1949 taken into partnership **Mr. Frederick Napier Pinder [F]**. The title of the firm will be **Derby Fazackerley and Pinder [L F]**, 20 Ribblesdale Place, Preston (Preston 2705).

**John and Elizabeth Eastwick-Field [A A]** would be pleased to receive trade catalogues etc. at 24 The Little Boltons, London, S.W.10. (FRObisher 0203.)

**Mr. A. B. Grayson [F]** is on medical advice retiring from the firm of **Grayson and Goldsmith**, and will devote himself to his practice in the Channel Islands. **Mr. Humphrey H. Goldsmith [A]** took over the practice on 31 March 1949 under the style and title of **Humphrey H. Goldsmith**. He will continue to practise at 7 Bridge Street, Bath.

**Mr. Eric Levy [A]** is now practising at Deansgate Buildings, 32 Deansgate, Manchester, 3 (Blackfriars 3851), and would be pleased to receive trade catalogues etc.

**Mr. Thomas K. Makins [A]** will from 2 May 1949 practise on his own account from 18 Landport Terrace, Portsmouth, where he will be pleased to receive trade catalogues etc.

**Mr. G. Angus Mitchell [F]**, of Geo. Bennett Mitchell and Son, 1 West Craibstone Street, Bon-Accord Square, Aberdeen, has taken into partnership **Mr. John Lamb [A]**.

**Mr. F. Stanley Seagrim [L]** has taken into partnership **Mr. Charles Read [L]**. The practice will continue under the style of **Stanley Seagrim and Charles Read**, Lloyds Bank Chambers, Paignton (Paignton 57964).

**Mr. Arthur A. Stewart [A]** opened an office at 6 Cromwell Place, South Kensington, London, S.W.7 (FREemantle 4593), on 1 April, and will be pleased to receive trade catalogues

etc. He is also continuing to practise at his present address, Grove Meadow, Jordans, Buckinghamshire (Jordans 3137).

**Mrs. Denise M. Stone [A]** has commenced practice in Hermanus, Cape Province, S.A. Her address is 'The Cottage in the Trees,' Mossel River, Hermanus, Cape Province, South Africa, and she will be pleased to receive trade catalogues etc.

**Mr. Ernest J. Thomas [F]**, F.R.I.C.S., M.I.Struct.E., of Coronation House, King's Terrace, Portsmouth has taken into partnership **Mr. George J. Jolly [F]** and **Mr. R. G. Grant**, A.R.I.C.S. The firm will continue to practise at Coronation House and at Gosport under the style of **Ernest J. Thomas, Jolly and Grant**.

**Mr. N. Stuart Wallace [A]**, having relinquished his position as Assistant Architect to Imperial Chemical Industries, Alkali Division, Northwich, is carrying on with his private practice from 250 London Road, Brockhurst Hill, Northwich, Cheshire, and will be pleased to receive trade catalogues etc.

**Mr. K. Ward [A]** has commenced practice on his own account at 3 Finkle Street, Selby, Yorkshire.

## CHANGES OF ADDRESS

**Mr. Anthony Lewis [A]** has removed his Barbados office to Bolton Lane, Barbados, British West Indies. He has also recently opened an additional office in Castries, St. Lucia, B.W.I., where he will be pleased to receive trade catalogues etc.

On 25 March 1949 **Mr. Adolph M. Isaacs [A]** removed his office from Mawson's Chambers, 28 Deansgate, Manchester 3, to 10 Corporation Street, Manchester 4.

**Mr. Sergei Kadleigh [A]** has removed from 9 Mansfield Street, London, W.1, to 63 Abingdon Villas, London, W.8 (WESTern 4402).

**Mr. James Metcalfe Knowles [A]**, A.R.I.C.S., A.M.T.P.I., has moved his office from 9 St. Leonard's Terrace, London, S.W.3, to 32 Old Queen Street, London, S.W.1 (WHItchall 0909) and will be pleased to receive trade catalogues etc.

**Mr. John A. McMorland [A]** has taken up an appointment with **Mr. Hugh Walker [A]**, and his new address for correspondence, etc. is Murray House, 25 Hout Street, Cape Town, South Africa.

**Mr. W. Wylton Todd [A]** has moved his office to 11 Duke Street, Manchester Square, London, W.1 (WELbeck 3995-6-7).

## PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate, aged 36, with experience of conservation and archaeological research, as well as ordinary domestic practice, seeks partnership (or appointment with view to partnership) with a diocesan architect, or one who specializes in the maintenance of ancient buildings. Box 33, c/o Secretary, R.I.B.A.

Associate, A.M.T.P.I., A.A.Dip., age 33, now in country partnership, seeks partnership in progressive practice, where wider scope exists for clean design. Capital available, or would work passage; Eastern Counties preferred. Box 34, c/o Secretary, R.I.B.A.

Fellow offers partnership in old-established busy country practice (Hampshire). Some capital required, but ability is essential. Box 42, c/o Secretary, R.I.B.A.

Licentiate with old-established practice in Cornwall wishes to correspond with member

with view to partnership and seeks early retirement. Housing and sewerage schemes form present bulk of work in office. Box 35, c/o Secretary, R.I.B.A.

Member (36) desires partnership in a busy London office, or would consider joint formation of a practice. Capital available. Twelve years varied experience in private practice. Box 29, c/o Secretary, R.I.B.A.

Partnership or practice required, preferably in North Hants or Surrey. Box 40, c/o Secretary, R.I.B.A.

For Sale. Architect and Surveyor's practice, owing to age of partners. Offices in two West Riding towns. Excellent opportunity for energetic person to acquire a seventy-year-old established practice. Box 30, c/o Secretary, R.I.B.A.

Share of practice in Surrey town for disposal. Good offices. Principal [Fellow] about to retire. Partner remaining. Box 31, c/o Secretary, R.I.B.A.

## WANTED AND FOR SALE

Wanted. Double elephant plan press, good condition. Seagrim, Chartered Architect, Lloyds Bank Chambers, Paignton (Paignton 57964).

Wanted for teaching in architecture, books on modern architecture and history, also architectural publications 1930 onwards. Box 36, c/o Secretary, R.I.B.A.

Wanted. *Gothic Architecture in England* (Francis Bond). Box 41, c/o Secretary, R.I.B.A.

For Sale. 6-in. half set compasses, eulcrum, plain points, 30s.; offers for ARCHITECTURAL REVIEW, March 1929-February 1930 inc. new condition. Box 39, c/o Secretary, R.I.B.A.

For Sale. Small office safe, 2 vols. McKim, Mead and White, *The English Interior* (Stratton), *Elements of Architecture* (Gromort). Box 37, c/o Secretary, R.I.B.A.

## ACCOMMODATION

Member requires suite of two or three offices in London, preferably W.1 or W.C.1 districts, or a share of general and drawing office accommodation with another member, with use of one private office. Box 32, c/o Secretary, R.I.B.A.

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